

# Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 FIA 3,5b

4. Edition

En

Testoil-ISO 4113

VA 4/110 H 1250 CL 136-6  
0 460 314 034

superseded 1.79

company Fiat

engine 8045-04270

Nozzle-and-holder assembly  
1 688 901 020 (172 + 3 bar)

Pre stroke setting 0,5 mm  $\pm$  0,02 ( $\pm$  0,04)  
Setting of the pointer at a stroke of 1,0 mm in relation  
to outlet "A".

All test specifications are valid for  
Bosch Fuel Injection Pump Test Benches  
and Testers  
Test Instructions and Test Equipment  
VDI WPP 161/4 B  
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge air press kp/cm <sup>2</sup>	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1000	4,7-5,5 mm		
1.2 Supply pump pressure	1000	5,3-5,8 kp/cm <sup>2</sup>		
1.3 Full load delivery without charge air pressure	1200	70,0-73,0 cm <sup>3</sup> /1000 strokes		2,5
Full load delivery with charge air pressure	--	-- cm <sup>3</sup> /1000 strokes		
1.4 Idle speed regulation	300	22,0-28,0 cm <sup>3</sup> /1000 strokes		3,0
1.5 Start	100	mind. 110,0 cm <sup>3</sup> /1000 strokes		
1.6 Full load speed regulation	1400	26,0-34,0 cm <sup>3</sup> /1000 strokes		

## 2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	700	1000	1250
	mm	1,5-2,5 (1,2-2,8)	(5,0-6,1)	6,2-6,7 (5,9-7,0)
2.2 Supply pump	rev/min	200	1000	1100-1250
	kp/cm <sup>2</sup>	1,5-2,0 (1,3-2,2)	(5,1-6,0)	6,1-6,8 (5,9-7,0)
Overflow delivery	rev/min	500		1250
	cm <sup>3</sup> /10 s	55-100 (40-110)		55-100 (40-110)

### 2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm <sup>3</sup> /1000 strokes	Charge air pressure kp/cm <sup>2</sup>
End stop	Full	1460-1510 (1440-1530)	0	
		1400	(25,0-35,0)	
		1200	(69,0-74,0)	
		800	70,5-71,5 (70,0-72,0)	
		500	62,0-65,0 (61,0-66,0)	
	Stop	1250	0	
Idle stop	Full	400-450 (380-470)	0	
		300	(21,0-29,0)	
		100	mind. 110,0	
End stop	Start	110-230		

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Angle to the stop plate	Pre-setting dimensions
<p>Pump</p> <p><math>\alpha = 25 \pm 4^\circ</math></p> <p><math>\beta = 35 \pm 8^\circ</math></p> <p><math>\gamma = 30 - 8^\circ</math></p> <p><math>\delta = 60 + 8^\circ</math></p>	<p>Pump</p> <p>Dimension IV = 3,60 mm</p> <p>Dimension V = 24,65 mm</p>



# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP 001/4 REN 2,0 b

4. Edition

VE 4/9 F 2250 R 41  
0 460 494 027

Overflow temperature 45° C

supersedes 5.84  
company: Renault  
engine: 852

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

---

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1400	4,4-4,8 mm		
1.2 Supply-pump pressure	1400	4,9-5,5 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge-air pressure	1400	38,5-39,5 cm <sup>3</sup> /1000 strokes		2,5 (3,0)
1.4 Idle regulation	400	7,5-11,5 cm <sup>3</sup> /1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	2400	17,0-23,0 cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 52,0 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	1400	--		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	1000 2,6-3,4 (2,3-3,7)	1400 (3,9-5,3)	2000 6,7-7,5 (6,4-7,8)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	1000 3,9-4,5	2000 6,5-7,1	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)	2250 55-138 (40-153)	

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2550 2400 2200 2100 1400 1000	max. 2,0 (16,0-24,0) 31,4-33,4 (30,1-34,7) 32,7-34,7 (31,4-35,9) (36,7-41,2) 35,8-38,8 (34,3-40,3)	
switch-off	2250	0	
Idle stop	650 400	max. 5,0 (5,5-13,5)	
End stop	320 430	min. 45,0 max. 45,0	
2.4 Solenoid	max. cut-in voltage test voltage XXXXXXXXXX	xx min. 10,0 V rated voltage 12V.	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	mm
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 3,5
A XK	20,1-22,1
B XL	9,5-13,3

Observations

⑥

# Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWV 1,6 b 1

3. Edition

En

VE 4/9 F 2400 R 66

Overflow temperature 45° C

supersedes 1.83

company: VWV

engine: 1,6 L

0 460 494 048

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	2,9-3,3 mm		
1.2 Supply-pump pressure	1500	4,9-5,5 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery with charge-air pressure		cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge-air pressure	1500	31,5-32,5 cm <sup>3</sup> /1000 strokes		2,5(3,0)
1.4 Idle regulation	415	6,6-10,0 cm <sup>3</sup> /1000 strokes		2,5(3,0)
1.5 Full-speed regulation	2600	11,0-17,0 cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 35,0 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	-			

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1500 (2,4-3,8)	2400 6,1-6,9 (5,8-7,2)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 2,1-2,7		2400 7,0-7,6
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)		2400 55-138 (40-153)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2700 2600 2400 1500 600	2,5-9,5 (2,0-10,0) (10,0-18,0) 27,0-29,0 (25,7-30,3) (29,7-34,3) 20,5-23,5 (18,0-26,0)	
switch-off			
elektr.	400	0	
Idle stop	1200 600 415	max. 3,0 max. 6,0 (4,0-12,0)	
End stop	400 500	min. 17,0 max. 22,5	
2.4 Solenoid	max. cut-in voltage xx test voltage xxxxxx	min. 10 V rated voltage 12V.	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max. 2,5
FH*)	1,8 - 2,4
A X K	18,4-20,4
B X L	9,1-12,9

## Observations

\*operating  
stroke (KSB)

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# Test Specifications

## Distributor-type Fuel-injection Pumps

En

VE 4/9 F 2200 R 69

Overflow temperature 45° C

 supersedes  
company:  
engine:

 01.84  
Renault  
J 8 S - 702

0 460 494 055

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1400	4,0-4,4 mm	0,735	
1.2 Supply-pump pressure	1400	5,1-5,7 bar (kgf/cm <sup>2</sup> )	0,735	
1.3 Full-load delivery with charge-air pressure	1400	49,5-50,5 cm <sup>3</sup> /1000 strokes	0,735	2,5 (3,0)
Full-load delivery without charge-air pressure	600	35,0-36,0 cm <sup>3</sup> /1000 strokes	0	
1.4 Idle regulation	350	9,0-13,0 cm <sup>3</sup> /1000 strokes	0	2,5 (3,0)
1.5 Full-speed regulation	2400	23,0-29,0 cm <sup>3</sup> /1000 strokes	0,735	
1.6 Start	100	min. 60,0 cm <sup>3</sup> /1000 strokes	0	
1.7 Load-dependent port-closing	-	-		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	1000 1,9-2,7(1,6-3,0)	1400 (3,5-4,9)	1800 5,7-6,5(5,4-6,8)	2000 6,2-7,0(5,9-7,3)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 1,9-2,5	1800 6,3-6,9		
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)	2200 55-138 (40-153)		

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2700 2500 2400 2000 1400 1000 700* 600	max. 2,0 max. 17,5 (22,0-30,0) 43,0-45,0(41,7-46,2) (47,7-52,2) 45,0-48,0(43,5-49,5) 40,0-41,0(37,5-43,5) (32,5-38,5)	0,735 0,735 0,735 0,735 0,735 0,735 0,2 0
switch-off	2200		
Idle stop	480 375 350 180 300	max. 2,0 4,0-8,0 (2,0-10,0) (7,0-15,0) min. 40 max. 40	
2.4 Solenoid	max. cut-in voltage test voltage	xxxx min. 10,0 V rated voltage 12V.	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 5,3
<sup>A</sup> XK	20,2-22,2
<sup>B</sup> XL	9,1-12,4
Observations	
* Manifold-pressure compensator stroke = 4,5 mm Correction at the adjusting nut. (46)	

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# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP 001/4 BMW 2,4 b

1. Edition

En

VE 6/10 F 2400 R 118

Overflow temperature 45° C

0 460 406 025

DHK 1 688 901 022, Prüfdruck 1. 1 680 750 073

supersedes  
company: BMW - USA, Ford-calif.  
engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1 1 Timing device travel	1500	6,5 - 6,9 mm	1,050	
1 2 Supply-pump pressure	1500	5,9 - 6,5 bar (kgf/cm <sup>2</sup> )	1,050	
1 3 Full-load delivery with charge-air pressure	1500	39,5 - 40,5 cm <sup>3</sup> /1000 strokes	1,050	max. 3,0
Full-load delivery without charge-air pressure	500	21,5 - 22,5 cm <sup>3</sup> /1000 strokes	0	max. 3,0
1 4 Idle regulation	400 **	6,0 - 10,0 cm <sup>3</sup> /1000 strokes	0	
1 5 Full-speed regulation	2600	17,0 - 23,0 cm <sup>3</sup> /1000 strokes	1,050	max. 3,0
1 6 Start	250 **	35,0 - 37,0 cm <sup>3</sup> /1000 strokes	0	
1 7 Load-dependent port-closing	-			

## 2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min	400	1500	1500 **	2000
LDA = 1,050 bar	mm	3,8-4,6 (3,5-4,9)	(6,0-7,4)	0	8,2-9,0 (7,9-9,3)
2 2 Supply pump	n = rev/min	500			2300
LDA = 1,050 bar	bar (kgf/cm <sup>2</sup> )	4,4 - 5,0			7,2 - 7,8
Overflow delivery	n = rev/min				2400
	cm <sup>3</sup> /10 s				55-138 (40-153)

## 2 3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )
End stop	2700	7,0-13,0 (6,0 - 14,0)	1,050
	2600	(16,0- 24,0)	1,050
	2400	39,5-41,5 (38,2-42,8)	1,050
	1500	(37,7-42,3)	1,050
	* 750	31,5-32,5 (29,7-34,3)	0,5
	500 **	(19,7-24,3)	0
switch-off			
Idle stop	450 **	max. 3,0	
Exhaust gas re- circulation dri- ver	400 **	(4,0 - 12,0)	
	850 ***	16,0-18,0	
Start	100 **	27,0-37,0	
Inspection point	400 **	28,0-38,0	
Limit stop	480 **	19,2-23,8	

## 2 4 Solenoid

max. cut-in voltage xxx min. 10 V  
test voltage xxx rated voltage 12V.

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2 - 3,4
KF	6,3 - 6,6
MS	1,4 - 1,6
SVS	3,0
XK	20,2 - 22,2
XL	9,5 - 12,8
A	
B	

## Observations

Please note instruc-  
tions on sheet 2.

- \* Manifold-pressure compensator stroke = 7,5 mm
- \*\* Supply 12 V to the solenoid valve
- \*\*\* Setting point for the exhaust gas recirculation

Pull the control lever in the direction of full load, until the gauge fits over the driver and stay on the housing cover.  
Measure the fuel delivery.

(rated voltage 12 V)

# Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 BMW 2,4 C  
1. Edition

En

VE 6/10 F 2400 R 118-1

Overflow temperature 45° C

supercedes -  
company BMW - USA Ford  
engine: M 21 D 24

0 460 406 041

DHK 1 688 901 022, Prüfdruck 1. 1 680 750 073

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

Test ISO 4110

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	6,5 - 6,9 mm	1,050	
1.2 Supply-pump pressure	1500	5,9 - 6,5 bar (kgf/cm <sup>2</sup> )	1,050	
1.3 Full-load delivery with charge-air pressure	1500	39,5-40,5 cm <sup>3</sup> /1000 strokes	1,050	max. 3,0
Full-load delivery without charge-air pressure	500	21,5-22,5 cm <sup>3</sup> /1000 strokes	0	max. 3,0
1.4 Idle regulation	400 **	6,0-10,0 cm <sup>3</sup> /1000 strokes	0	
1.5 Full-speed regulation	2600	17,0 - 23,0 cm <sup>3</sup> /1000 strokes	1,050	max. 3,0
1.6 Start	250 **	35,0 - 37,0 cm <sup>3</sup> /1000 strokes	0	
1.7 Load-dependent port-closing	-			

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	400	1500	1500**	2000
LDA = 1,050 bar	mm	3,8-4,6 (3,5-4,9)	(6,0-7,4)	0	8,2-9,0 (7,9-9,3)
2.2 Supply pump	n = rev/min	500			2300
LDA = 1,050 bar	bar (kgf/cm <sup>2</sup> )	4,4-5,0			7,2 - 7,8
Overflow delivery	n = rev/min				2400
	cm <sup>3</sup> /10 s				55-138 (40-153)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2700	7,0 - 13,0 (6,0 - 14,0)	1,050
	2600	(16,0- 24,0)	1,050
	2400	39,5- 41,5 (38,2-42,8)	1,050
	1500	(37,7-42,3)	1,050
	* 750	31,5-32,5 (29,7-34,9)	0,5
	500 **	(19,7-24,3)	0
switch-off			
Idle stop			
Exhaust gas re- circulation dri- ver	450 **	max. 3,0	
	400 **	(4,0 - 12,0)	
Start	850 ***	16,0-18,0	
Inspection point	100 **	27,0-37,0	
Limit stop	400 **	28,0-39,0	
	480 **	19,2-23,8	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2 - 3,4
KF	6,3 - 6,6
MS	1,4 - 1,6
SVS	3,0
A	
B	

## Observations

Please note instruc-  
tions on sheet 2.

2.4 Solenoid	max. cut-in voltage	xxx min. 10 V
	test voltage	rated voltage 12V.
	xxxxxxx	

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- \* Manifold-pressure compensator stroke = 7,5 mm
- \*\* Supply 12 V to the solenoid valve
- \*\*\* Setting point for the exhaust gas recirculation

Pull the control lever in the direction of full load, until the gauge fits over the driver and stay on the housing cover.  
Measure the fuel delivery.

(rated voltage 12 V)

⑥

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

46

WPP 001/4 CUM 3,9 a

2. Edition

En

VE 4/12 F 1250 R 123

Overflow temperature 45° C

 superseded 03.84  
 company: Cummins  
 engine: 4 T.390

0 460 424 006

DHK: 1 688 901 016 / 207+3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm  $\pm$  0,02 (0,04)

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1 1 Timing device travel	900	2,3- 2,7 mm		
1 2 Supply-pump pressure	900	4,5- 5,1 bar (kgf/cm <sup>2</sup> )		
1 3 Full-load delivery with charge-air pressure	-	cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge-air pressure	1100	85,0-86,0 cm <sup>3</sup> /1000 strokes		4,0(4,5)
1 4 Idle regulation	375	18,5-24,5 cm <sup>3</sup> /1000 strokes		3,5(4,5)
1 5 Full-speed regulation	1340	24,5-32,5 cm <sup>3</sup> /1000 strokes		
1 6 Start	100	min. 97,0 cm <sup>3</sup> /1000 strokes		
1 7 Load-dependent port-closing	-			

## 2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min mm	750 1,1-1,9(0,8-2,2)	900 (1,8-3,2)	1100 3,2-4,0(2,9-4,3)	1250 3,7-4,5(3,4-4,8)
2 2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 2,3-2,9	750 3,8-4,4	1100 5,3-5,9	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	600 55-138(40-153)	1250 55-138(40-153)		

## 2 3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )
End stop	1400	max. 1,0	
	1340	(23,5-33,5)	
	1250	80,0-83,0 (78,5-84,5)	
	1100	(82,5-88,5)	
	750	88,5-92,5 (86,7-94,3)	
	600	88,5-92,5 (86,7-94,3)	
switch-off			
Idle stop	450	max. 1,5	
	375	(16,5-26,5)	
	300	40,3-46,3 (38,3-48,3)	
	130	min. 97,0	
	200	max. 85,0	
End stop			
2 4 Solenoid	max. cut-in voltage	xx min. 10 V	
	test voltage	xxxxxxx rated voltage 12V.	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	-
KF	5,1-5,4
MS	1,4-1,6
SVS	4,2
A	
B	

## Observations

Stop check electric  
shutoff device at  
375 min/1.

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10.84

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410



# Test Specifications

## Distributor-type

## Fuel-injection Pumps

VE 4/9 F 2200 R 153

Overflow temperature 45° C

 supersedes Renault  
 company: J8S-709  
 engine:

0 460 494 141

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1400	4,0-4,4 mm	0,8	
1.2 Supply-pump pressure	1400	5,1-5,7 bar (kgf/cm <sup>2</sup> )	0,8	
1.3 Full-load delivery with charge-air pressure	1400	49,5-50,5 cm <sup>3</sup> /1000 strokes	0,8	2,5 (3,0)
Full-load delivery without charge-air pressure	600	35,0-36,0 cm <sup>3</sup> /1000 strokes	0	
1.4 Idle regulation	350	9,0-13,0 cm <sup>3</sup> /1000 strokes	0	2,5 (3,0)
1.5 Full-speed regulation	2400	23,0-29,0 cm <sup>3</sup> /1000 strokes	0,8	
1.6 Start	100	min. 60,0 cm <sup>3</sup> /1000 strokes	0	
1.7 Load-dependent port-closing	-			

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	1000 1,9-2,7 (1,6-3,0)	1400 (3,5-4,9)	1800 5,7-6,5 (5,4-6,8)	2000 6,2-7,0 (5,9-7,3)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 1,9-2,5	1800 6,3-6,9		
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	300 55-138(40-153)	2200 55-138(40-153)		

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )
End stop	2700	max. 2,0	0,8
	2500	max. 17,5	0,8
	2400	(22,0-30,0)	0,8
	2000	43,0-45,0 (41,7-46,2)	0,8
	1400	(47,7-52,2)	0,8
	1000	45,0-48,0 (43,5-49,5)	0,8
	*700	40,0-41,0 (37,5-43,5)	0,2
	600	(32,5-38,5)	0
switch-off	2200	0	
Idle stop	480	max. 2,0	
	375	4,0-8,0 (2,0-10,0)	
	350	(7,0-15,0)	
End stop	180	min. 40,0	
	300	max. 40,0	
2.4 Solenoid	max. cut-in voltage xx min. 10,0 V test voltage rated voltage 12V.		

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-6,0
MS	1,4-1,6
SVS	3,6
A	
B	
Observations	
* Manifold-pressure compensator stroke = 4,5 mm Correction at the adjusting nut. (46)	

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP 001/4 REN 2,0 k 1

2. Edition

En

VE 4/9 F 2200 R 153-1

Overflow temperature 45° C

0460 494 156

 superseded 02.84  
 company: Renault  
 engine: J8S-T 01

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W 460/...

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1400	4,0-4,4 mm	0,8	
1.2 Supply-pump pressure	1400	5,1-5,7 bar (kgf/cm <sup>2</sup> )	0,8	
1.3 Full-load delivery with charge-air pressure	1400	49,5-50,5 cm <sup>3</sup> /1000 strokes	0,8	2,5(3,0)
Full-load delivery without charge-air pressure	600	35,0-36,0 cm <sup>3</sup> /1000 strokes	0	
1.4 Idle regulation	350	9,0-13,0 cm <sup>3</sup> /1000 strokes	0	2,5(3,0)
1.5 Full-speed regulation	2400	23,0-29,0 cm <sup>3</sup> /1000 strokes	0,8	
1.6 Start	100	min. 60,0 cm <sup>3</sup> /1000 strokes	0	
1.7 Load-dependent port-closing	-			

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	1000 1,9-2,7 (1,6-3,0)	1400 (3,5-4,9)	1800 5,7-6,5 (5,4-6,8)	2000 6,2-7,0 (5,9-7,3)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 1,9-2,5		1800 6,3-6,9	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)		2200 55-138 (40-153)	

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2700	max. 2,0	0,8
	2500	max. 17,5	0,8
	2400	(22,0-30,0)	0,8
	2000	43,0-45,0 (41,7-46,2)	0,8
	1400	(47,7-52,2)	0,8
	1000	45,0-48,0 (43,5-49,5)	0,8
	*700	40,0-41,0 (37,5-43,5)	0,2
	600	(32,5-38,5)	0
switch-off	2200	0	
Idle stop	480	max. 2,0	
	375	4,0-8,0 (2,0-10,0)	
	350	(7,0-15,0)	
End stop	180	min. 40,0	
	300	max. 40,0	
2.4 Solenoid	max. cut-in voltage	xxx min. 10 V	
	rated voltage	12V.	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-6,0
MS	1,4-1,6
SVS	3,6
A	
B	

## Observations

\* Manifold-pressure  
compensator stroke  
= 4,5 mm  
Correction at the  
adjusting nut. (46)

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP 001/4 REN 2,0f

3. Edition

En

5.84

VE 4/9 F 2250 R 158

Overflow temperature 45° C

 supersedes  
company:  
engine:

 Renault  
J85-706

0 460 494 145

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1400	4,4-4,8 mm		
1.2 Supply pump pressure	1400	4,9-5,5 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge-air pressure	1400	38,5-39,5 cm <sup>3</sup> /1000 strokes		2,5 (3,0)
1.4 Idle regulation	400	7,5-11,5 cm <sup>3</sup> /1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	2400	17,0-23,0 cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 52,0 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	1400			

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1400	2000
	mm	2,6-3,4 (2,3-3,7)	(3,9-5,3)	6,7-7,5 (6,4-7,8)
2.2 Supply pump	n = rev/min	1000		2000
	bar (kgf/cm <sup>2</sup> )	3,9-4,5		6,5-7,1
Overflow delivery	n = rev/min	500		2250
	cm <sup>3</sup> /10 s	55-138 (40-153)		55-138 (40-153)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2550	max. 2,0	
	2400	(16,0-24,0)	
	2200	31,4-33,4 (30,1-34,7)	
	2100	32,7-34,7 (31,4-35,9)	
	1400	(36,7-41,2)	
	1000	35,8-38,8 (34,3-40,3)	
switch-off	2250	0	
Idle stop	650	max. 5,0	
	400	(5,5-13,5)	
End stop	320	min. 45,0	
	430	max. 45,0	
2.4 Solenoid	max. cut-in voltage	xxx min. 10 V	
	test voltage	rated voltage 12V.	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 3,6
A X XK	
B X XL	

Observations

# Test Specifications Fuel Injection Pumps **(1A)** and Governors

**40**

WPP 001/4 PEU 1,1 a

1. Edition

En

PES 2 A 80 D 420 RS 1259 RSV 450-1350 A2B 580 DR  
Komb.-Nr. 0 400 472 043 A2C 580 R

supersedes  
company Peugeot  
engine C 193

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,15-2,25}{(2,10-2,30)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1350	9,0-9,1	3,8 - 3,9	0,2(0,35)			
450	8,1-8,3	1,0 - 1,4	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

<b>(1)</b> Upper rated speed rev/min			Intermediate rated speed			<b>(4)</b> Lower rated speed			<b>(3)</b> Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 23	450	8,2	1350	9,0-9,1
	x = 4,0						100	min. 19,0	690	9,5-9,7
							450	8,6-8,8	500	10,2-10,3
ca. 52	8,0	1390-1400					740-800	= 2,0		
<b>(2a)</b>	4,0	1415-1445					800	max. 1,0		
	1640	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

<b>(2b)</b> Full-load stop		<b>(6)</b> Rotational speed limit		<b>(3a)</b> Fuel delivery characteristics		Starting fuel delivery idle <b>(5)</b>		<b>(4a)</b> Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1350	37,5-38,5 (36,0-40,0)	1390-1400*	900	31,5-33,5 (30,0-35,0)	100	60,0-70,0 (57,0-73,0)	-	-	
			500	29,5-31,5 (28,0-33,0)		= 18,6 - 19,2 mm RW			

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.84

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A41

Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 11

1. Edition

En

PES 4 A 80 D 410/3 RS 1300 RSV 325-1150 A 8 C 2163 - 2 L

Komb.-Nr. 0 400 464 130

superseded

company KHD

engine F 4 L 912

51 kW/2300 min<sup>-1</sup>

Schlepper DX 4,10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 - 2,0  
(1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1175	10,8+0,1	5,2 - 5,3	0,25 (0,4)			
325	8,4-8,6	1,0 - 1,6	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees rev/min 7 8 9			3 Torque control rev/min Control rod travel 10 11	
	Control rod travel mm 2	Control rod travel mm rev/min 3								
loose	800	0,3-0,7	-	-	-	ca. 12	325	8,0	1175	10,8-10,9
	x =	3,25							500	12,0-12,1
ca. 54	9,8	1215-1225					325	8,4-8,6		
	4,0	1280-1310					470-530	= 2,0		
2a	1400	0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to 1 rev/min 3		3a Fuel delivery characteristics rev/min cm <sup>3</sup> /100 strokes 4 5		Starting fuel delivery Idle rev/min cm <sup>3</sup> /100 strokes 6 7		4a Idle stop rev/min Control rod travel mm 8 9	
	cm <sup>3</sup> /1000 strokes 2								
1175	52,0 - 53,0 (50,5 - 54,5)	1215-1225*		800	51,5 - 53,5 (49,5 - 55,5)	100	115,0-125,0 (112,0-128,0)	0 -	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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9.84

Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 3,0 b

1. Edition

En

PES 3 A 80 D 410/3 RS 1324 RSV 325-1150 A 8 C 715-1 L

Komb.-Nr. 0 400 463 145

supersedes

KHD

company

F 3 L 912

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

1,9-2,0

Port closing at prestroke (1,85-2,05)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,8+0,1	5,8-5,9	0,2(0,35)			
325	8,0-8,2	1,2-1,8	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.20	325	7,6	1150	10,8-10,9
									500	11,2-11,3
									775	10,8-11,1
ca.55	9,8	1190-1200					100	min.19,5		
	4,0	1255-1285					325	8,0-8,2		
②a	1375	0,3-1,7					460-520	= 2,0		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	4	5	6	7	8	9	Control rod travel mm 9
1000	58,0-59,0 (56,5-60,5)	1190-1200*	-	-	-	-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 15

1. Edition

En

PES 3 A 80 D 410/3 RS 1324

RSV 325-1200 A 8 B 2154 DL

supersedes

Komb.-Nr. 0 400 463 143

A 8 C 2154 L

company

engine

KHD  
F 3 L 912

33 kW/2400 min<sup>-1</sup>  
Schlepper

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

1,9-2,0

Port closing at prestroke

(1,85-2,05)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	11,2+0,1	6,1-6,2	0,2(0,35)			
325	8,9-9,1	1,7-2,3	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 19	325	8,5	1200	11,2-11,3
	x = 4,5								500	11,7-11,8
							100	min. 19,0	825	11,4-11,6
							325	8,9-9,1		
ca. 56	10,2	1240-1250					470-530	= 2,0		
②a	4,0	1285-1315								
	1450	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min				Idle		Control rod travel mm	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	4	5	6	7	8	9	
1200	60,5-61,5 (59,0-63,0)	1240-1250*	825	54,5-56,5 (53,0-58,0)	-	-	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.84

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Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 14

1. Edition

En

PES 3 A 80 D 410/3 RS 1324

RSV 325-1075 A 8 C 2163-1 L

Komb.-Nr. 0 400 463 147

superseded by  
KHD  
company F 3 L 912  
engine 34 kW/2150 min<sup>-1</sup>  
Schlepper DX 3,10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-2,0 mm (from BDC)  
(1,85-2,05)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	11,6+0,1	5,1-5,2	0,25 (0,35)			
325	8,5-8,7	1,0-1,6	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 17	325	8,1	800	11,6-11,7
	x = 4,0								500	11,6-11,7
ca. 50	9,7	1115-1125					100	min. 19,5	900	11,5-11,6
	4,0	1155-1185					325	8,5-8,7	1075	10,8-11,0
2a	1320	0,3-1,4					480-540	= 2,0		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to )							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
800	51,0-52,0 (49,5-53,5)	1115-1125*	-	-	100	115,0-125,0 (112,0-128,0) = 19,5-21,0 mm RW	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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10.84

A18

AAA



# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 13

1. Edition

En

PES 3 A 80 D 410/3 RS 1324

RSV 325-1250 A 8 C 2168-1 L

Komb.-Nr. 0 400 463 148

supersedes

company KHD

engine F 3 L 913

45 kW/2500 min<sup>-1</sup>

Schlepper DX 3,30

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{1,9-2,0}{(1,85-2,05)}$  mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,7+0,1	5,6-5,7	0,25(0,35)			
325	7,4-7,6	1,0-1,6	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
lose	800	0,3-0,7	-	-	-	ca. 19	325	7,9	1250	10,7-10,8
	x = 4,0						100	min.19,5	500	11,3-11,4
ca. 57	9,7	1290-1300					325	8,3-8,5	1090	10,9-11,2
②a	4,0	1400-1430					825-885	= 2,0		
	1565	0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min				Idle			
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	4	cm <sup>3</sup> /1000 strokes 5	6	rev/min 7	cm <sup>3</sup> /1000 strokes 8	rev/min 9	Control rod travel mm 10
1250	55,5-56,5 (54,0-58,0)	1290-1300*	800	48,5-50,5 (46,5-52,5)	100	115,0-125,0 (112,0-128,0) = 19,5-21,0 mm RW	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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10.84

A19

A 19

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 LOM 3,7 b

2. Edition

En

PES 4 A 80 D 420 LS 1345 RSV 350-750 A 7 B 2183-1 R

Komb.-Nr. 0 400 474 161

A 7 C 2183-1 R

supersedes 11.83

company Lombardini

engine LDA 934

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,7 - 2,8$   
(2,65-2,85) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
700	9,2-9,3	5,3-5,4	0,25(0,4)			
350	7,9-8,1	2,8-3,4	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Control lever deflection in degrees rev/min			3 Torque control rev/min	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca. 17	350	7,5	-	-
	x = 3,75						100	min. 19,5		
ca. 36	8,2	740-750					350	7,9-8,1		
2a	4,0	760-790					395-455	= 2,0		
	925	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min		6 Rotational speed limit Note changed to ) rev/min		3a Fuel delivery characteristics rev/min		Starting fuel delivery Idle rev/min		4a Idle stop rev/min	
1	cm <sup>3</sup> /1000 strokes 2	3		4	cm <sup>3</sup> /1000 strokes 5	6	cm <sup>3</sup> /1000 strokes 7	8	Control rod travel mm 9
700	52,5-53,5 (51,0-55,0)	740-750*	-	-	-	100	100,0-110,0 (97,0-113,0) = 15,2-15,7 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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A20

A20

Test ISO 4113

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 i 8

1. Edition

En

PES 6 A 80 C 410 RS 2085 X  
D

RQV 300-1425 AB 615 D

supersedes

company Daimler-Benz  
OM 352  
engine 66 kW (90 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25  
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,9 - 4,3	0,3			
	6	1,2 - 2,0				
200	9	1,8 - 2,6				

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 66	1425 1550 1650 1700 1790	16,0-19,4 8,2-13,4 1,4- 8,0 0 - 5,2 0	-	-	-	ca. 10	200 400 480 600 770	6,0-7,4 3,5-5,2 2,7-3,8 1,4-2,8 0	250 640 1030 1425	0,9-1,1 3,3-3,7 5,0-6,2 8,7
						③a				

Torque control travel a = 1,7 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b)	Fuel delivery characteristics high idle speed (5a)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min (4a)	rev/min	cm <sup>3</sup> /1000 strokes (5b)	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	38,5-40,5 (37,5-41,5)	1505-1515*	1000 800 500	35,5-38,5 36,0-39,0 37,7-41,2	100	72,5-82,5	1425 600	0 1,6-1,8

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 m

6. Edition

En

**Testoil-ISO 4113**

PES 6 A 80 C 410	RS2085X	EP/RSV 350-1300	A2B1005D (1)	..2C.. superseded 4.84
..D..	RS2085X	EP/RSV 350-1425	A2B1001D (2)	company Daimler-Benz
	RS2085X	EP/RSV 350-1425	A2B1007D (3)	engine OM 352 - Unimog
	RS2085X	EP/RSV 350-1400	A2B1052D (4)	(1+5) 84 PS
	RS2085T	EP/RSV 350-1300	A2B1005D (5)	(2) 90 PS
				(3) 100 PS
				(4) 110 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,3	0,3			
	6	1,2 - 2,0				
	15	9,8 - 11,0				
200	9	1,8 - 2,6				

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

A2 C  
350-1300 A2 B1005 D (1)

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	lose	350	6,9	1300	8,0+0,1
	x	= 4,25					100	min. 17,5	500	9,4+0,1
							350	6,8-7,0	700	9,2+0,2
ca. 48	7,0	1340-1350						= 2,0	950	8,3+0,3
⑤	4,0	1400-1430								
	1575	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to ...							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
(1) 1300	40,0 - 41,0 (38,5-42,5)	1340-1350 •		500	39,5 - 41,5 (37,5-43,5)	100	78,0 - 88,0 (75,0-91,0) = 14,5 - 14,9 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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**B. Governor Settings**

350-1425 A2 B1001D (2)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 60	1425	16,0	without auxiliary spring			ca. 22	350	7,5	1400	0
	1500	11,5					200	19 - 21		
	1560	6,8					350	7,2-7,8		
	1530	7,5-10,5					500	5,1-6,6		
	1600	4,0-6,0					700	0,1-4,0		
⑤	1820	0,3-1,0	with auxiliary spring				940	0 - 1	400	1,3-1,5

The numbers denote the sequence of the tests

**C. Settings for Fuel Injection Pump with Fitted Governor**

② Full load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						Control rod travel mm	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
(2) 1400	41,0 - 43,0	1455-1465	1000 800 500	37,0 - 40,0 38,5 - 41,5 40,0 - 43,0	100	72,5 - 82,5			
(increase by $\pm 0,5$ cm <sup>3</sup> )			⑥a						

Checking values in brackets

\* 1 mm less control rod travel than col 2

**Testoil-ISO 4113****B. Governor Settings**

350-1425 A2 B1007D (3)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 60	1425	16,0	without auxiliary spring			ca. 22	350	7,2	1400	0
	1500	11,4					200	19 - 21		
	1560	6,6					350	6,9-7,5		
	1520	8,0-10,9					600	2,3-4,6		
	1650	2,1-4,4					850	0 - 1,5		
⑤	1800	0,3-1,5	with auxiliary spring						450	0,9-1,1

The numbers denote the sequence of the tests

**C. Settings for Fuel Injection Pump with Fitted Governor**

② Full load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						Control rod travel mm	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
(3) 1400	45,0 - 47,0	1420-1430	1000 800 500	41,0 - 44,0 42,5 - 45,5 40,0 - 43,0	100	72,5 - 82,5			

Checking values in brackets

\* 1 mm less control rod travel than col 2

**B. Governor Settings**

350-1400 A2 B1052D (4)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 59	1400	16,0	without auxiliary spring			ca. 22	350	7,5	1400	0
	1480	10,8					200	19 - 21	800	0,1-0,3
	1530	7,0					350	7,2-7,8	400	0,8-1,0
	1500	7,2-10,6					600	3,4-5,4		
⑤	1600	3,6-5,5	with auxiliary spring				950	0 - 1		
	1800	0,3-1,0								

The numbers denote the sequence of the tests

**C. Settings for Fuel Injection Pump with Fitted Governor**

② Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
(4)			1000	46,0 - 49,0					
1400	50,5 - 52,5	1425-1465	800	44,5 - 47,5	100	72,5 - 82,5			
			500	44,5 - 47,5					
(increase by $\pm 0,5$ cm <sup>3</sup> )			⑥a						

Checking values in brackets

\* 1 mm less control rod travel than col 2

**Testoil-ISO 4113****B. Governor Settings**

350-1300 A2 B1005D mit 2085 T (5)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 51	1300	16,0	without auxiliary spring			ca. 19	350	8,0	1280	0
	1360	10,8					200	19 - 21		
	1400	6,7					350	7,7-8,3	800	0,8-1,0
ca. 49	1300	ca. 8,2	with auxiliary spring				600	2,2-4,3		
	1400	ca. 3,7					780	0 - 1		
	1520	0,3-1,0								
⑤										

The numbers denote the sequence of the tests

**C. Settings for Fuel Injection Pump with Fitted Governor**

② Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
(5)			800	36,5 - 39,5					
1290	40,0 - 41,0	1330-1340	500	(35,0 - 41,0)	100	72,5 - 82,5			
	(38,5 - 40,5)	(1325-1345)		36,5 - 39,0					
				(35,0 - 40,5)					

Checking values in brackets

\* 1 mm less control rod travel than col 2

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 e 1  
5. Edition

En

PES 6 A 80 D 410 RS 2085 Y RQV 300-1475 AB 533 DL  
Komb.-Nr. 0 400 846 185

supersedes 10.83  
company Daimler-Benz  
engine OM 352

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1450	8,2-8,3	4,6 - 4,7	0,2(0,35)			
300	6,9-7,1	1,3 - 1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	15,2-17,8	-	-	-	ca. 14	100 300	min. 8,5 6,9-7,1	250 660 1060 1475	0,8-1,1 3,4-3,8 5,3-5,5 8,3
ca. 60	7,2 4,0 1700	1505-1515 1560-1590 0 - 1,0				330-450 ③a				

Torque control travel a = 1,0 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b limitation intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min ④ cm <sup>3</sup> /1000 strokes ⑤		Starting fuel delivery idle switching point ⑥ rev/min ⑥ cm <sup>3</sup> /1000 strokes ⑦		Torque-control ⑤ travel rev/min ⑧ Control rod travel mm ⑨	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1450	46,0-47,0 (44,5- 48,5)	1505-1515*	800	45,5-47,5 (44,0-49,0)	100	71,5-81,5 (68,5-84,5) = 12,9-13,3 mm RW	1450 500 800 1200	8,2-8,8 9,2-9,8 8,9-9,1 8,2-8,5

Checking values in brackets

\* 1 mm less control rod travel than col. 2  
10.84

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①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 e 2

2. Edition

En

PES 6 A 80 D 410 RS 2085 Y

RQV 300-1475 AB 621 DL

supersedes 6.83

company Daimler-Benz

Komb.-Nr. 0 400 846 241

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $\frac{2,15-2,25}{(2,10-2,30)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1450	8,2-8,3	4,6-4,7	0,2(0,35)			
300	6,5-6,7	1,2-1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	15,2-17,8	-	-	-	ca. 11	100	min. 8,1	275	1,1-1,2
ca. 64	7,2 4,0 1700	1490-1500 1535-1565 0-1,0				380-500	300	6,5-6,7	675 075 475	3,5-3,8 5,4-5,5 8,3

Torque control travel a =                      mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1450	46,0-47,0 (44,5-48,5)	1490-1500*	500	41,0-44,0 (39,5-45,5)	100	78,0-88,0 (75,0-91,0) = 13,7-14,1 mm RW	1450 500 840 1100	8,2+0,1 9,1+0,1 9,0+0,2 8,5+0,3

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 i 5

1. Edition

En

PES 6 A 80 C 410 RS 2085 Y  
D

RQV 300-1475 AB 622 D

supersedes  
company Daimler-Benz  
OM 352  
engine 81 kW (110 PS)

Komb.-Nr. 0 400 846 242

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2, 15-2,25  
(2, 10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,4-4,8	0,3			
200	6	1,8-2,6				
	9	2,4-3,4				

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 66	1475 1600 1700 1800 1850	16,0-19,0 8,5-13,5 1,6-8,5 0-3,0 0	-	-	-	ca. 10	100 300 500 600 770	6,7-8,0 4,8-6,5 2,5-3,7 1,3-2,7 0	250 660 1070 1475	0,8-1,1 3,8-4,0 5,7-5,9 8,9

Torque control travel a = 1,2 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed ②b limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery ⑥ idle switching point		Torque-control ⑤ travel Control rod travel mm	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9
1450	46,0-47,0 (44,5-48,5)	1505-1515*	800	45,5-47,5 (44,0-49,0)	100	72,5-82,5	1475	0
1000	46,0-48,0 (44,5-49,5)		500	41,5-44,0 (40,0-45,5)			600	1,1-1,3

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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①

# Test Specifications

## Fuel Injection Pumps ①

### and Governors

WPP 001/4 MB 5,7 i 6

1. Edition

En

PES 6 A 80 C 410 RS 2085 Z  
D

RQV 300-1475 AB 626 D

supersedes

compa Daimler-Benz

engine OM 352

74 kW (100 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

 Port closing at prestroke 2,15-2,25  
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,4-4,8	0,3			
200	6 9	1,8-2,6 2,4-3,4				

Adjust the fuel delivery from each outlet according to the values in 

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 66	1475 1600 1700 1800 1850	16,0-19,0 8,5-13,5 1,6-8,5 0-3,0 0	-	-	-	ca. 10	100 300 500 600 770	6,7-8,0 4,8-6,5 2,5-3,7 1,3-2,7 0	250 660 1070 1475	0,8-1,1 3,8-4,0 5,7-5,9 8,9

Torque control travel a = 1,2 mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1450	41,0-43,0 (40,0-44,0)	1505-1515*	1000 800 500	38,5-41,5 39,5-42,5 36,0-39,5	100	72,5-82,5	1475 600	0 1,1-1,3

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 i 7

1. Edition

En

PES 6 A 80 C 410 RS 2085 Z RQV 300-1475 AB 627 D  
D

supersedes-

company Daimler-Benz

engine OM 352

74 kW (100 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  
2,15-2,25  
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,4 - 4,8	0,3			
	6	1,8 - 2,6				
200	9	2,4 - 3,4				

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 66	1475 1600 1700 1800 1850	16,0-19,0 8,5-13,5 1,6-8,5 0 - 3,0 0	-	-	-	ca. 10	100 300 500 600 770	6,7-8,0 4,8-6,5 2,5-3,7 1,3-2,7 0	250 660 1070 1475	0,8-1,1 3,8-4,0 5,7-5,9 8,9

Torque control travel a = 1,2 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1450	41,0-43,0 (40,0-44,0)	1505-1515*	1000 800 500	38,5-41,5 39,5-42,5 36,0-39,5	100	72,5-82,5	1425 600	0 1,1-1,3

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 i 3

1. Edition

En

PES 6 A 80 C 410 RS 2194 Z  
D

RQV 300-1475 AB 627 D

supersedes

company Daimler-Benz

engine OM 352

74 kW (100 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25  
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,4-4,8	0,3			
200	6	1,8-2,6				
	9	2,4-3,4				

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 66	1475 1600 1700 1800 1850	16,0-19,0 8,5-13,5 1,6-8,5 0-3,0 0	-	-	-	ca. 10	100 300 500 600 770	6,7-8,0 4,8-6,5 2,5-3,7 1,3-2,7 0	250 660 1070 1475	0,8-1,1 3,8-4,0 5,7-5,9 8,9

Torque control travel a = 1,2 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1450	41,0-43,0 (40,0-44,0)	1505-1515*	1000 800 500	38,5-41,5 39,5-42,5 36,0-39,5	100	72,5-82,5	1475 600	0 1,1-1,3

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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B6

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Test ISO 4113

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VMA 5,3 a

1. Edition

En

PES 6 A 90 D 410 RS 2511

RSF 250-1100 A 1 C 2185 L

superseded

Komb.-Nr. 0 400 876 319

company **Motori VM**  
engine **1156 DAN (T)**

Port closing difference between control-rod travel  
8.5 and max. = 6 - 7.5° camshaft.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,3-3,4}{(3,25-3,45)}$  mm (from BDC)  $RW = 7,5$  mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1100	10,5+0,1	8,8-8,9	0,3 (0,5)			
250	7,4-7,6	1,7-2,3	0,25 (0,45)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21	250	7,0	1100	10,5-10,6
	X = 4,0						100	min. 19,5	450	10,5-10,7
							250	7,4-7,6	300	11,8-12,4
							385-445	= 2,0		
ca. 56	9,5	1140-1150								
2a	4,0	1175-1205								
	1340	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to )				Idle			
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1100	87,5-88,5 (85,5-90,5)	1140-1150*	-	-	-	-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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B7

82

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 4,1 c 3

1. Edition

En

PES 4 A 80 D 410/3 RS 2523

RSV 325-1400 A2B 1022 DL

supersedes

company KHD

Komb.-Nr. 0 400 864 043

engine F4L 912

64 kW/2800 min<sup>-1</sup>

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-2,0 mm (from BDC)  
(1,85-2,05)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1400	12,0+0,1	6,9-7,1	0,2(0,35)			
325	8,8-9,0	0,9-1,5	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

Test oil ISO 4113

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control lever deflection in degrees 7			3 Torque control Control rod travel mm	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	mm 11
loose	800 0,3-1,0 X = 4,5		-	-	-	ca. 21	325 5,0		1400	12,0-12,1
							100 min. 19,0		935	12,3-12,4
ca. 58	11,0 1440-1450 4,0 1505-1535 1650 0,3-1,7						325 5,4-5,6 525-585 = 2,0 700 0 - 1,0		500	13,2-13,3

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note: changed to ... rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		4a Idle stop Control rod travel mm 9	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes 7		rev/min 8	
1400	70,0-71,0 (68,5-72,5)	1440-1450*	850	61,5-63,5 (60,0-65,0)		-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

9.84

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# Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 MB 3,8 n

4. Edition

En

PES 4 A 90 D 410 RS2570 RSV 350-1400 AO B2070L

Komb.-Nr. 0 400 874 226

supersedes 8.81  
company Daimler-Benz  
engine OM 314  
62 kW (84 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,25-2,35$  mm (from BDC)  
 $(2,20-2,40)$

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1380	11,9+0,1	6,1 - 6,3	0,3(0,45)			
350	8,8-9,0	0,5 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control lever deflection in degrees rev/min 7 8 9			3 Torque control Control rod travel rev/min mm 10 11	
loose	Control rod travel mm 2	Control rod travel mm rev/min 3								
	800	0,3-1,0	-	-	-	ca. 24	350	8,9**		
	X = 3,25									
ca. 57	1420- 1430=10,9						435-495	= 2,0mm	1380	11,9+0,1
	1485- 1505= 4,0								900	12,2+0,2
2a	1550= 0,3-1,7								600	12,6+0,1

\*\* Set idle-speed auxiliary spring at 2 mm control-rod travel.  
The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 4a Idle stop Control rod travel mm 8 9	
	cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes 7		
1380	61,5-62,5 (59,5-64,5)	1420-1430*		600	53,0- 55,0 (50,5- 57,5)	100	78,0-88,0 (75,0-91,0)	-	-
				900	59,0- 62,0 (56,5- 64,5)				

Checking values in brackets

\* 1 mm less control rod travel than col 2

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 8,3 n

6. Edition

En

PE 6 A 95 D 410 RS 2575 RSV 250-750 A 7 B 2124 L

Komb.-Nr. 0 400 676 166

Specifications apply to test tubing 1 680 750 015

superseded 5.84  
company DAF  
engine DU 825  
Generator

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 mm (from BDC) RW 9,0 mm  
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
750	12,5+0,1	10,1-10,3	0,4(0,7)			
250	6,0-6,2	0,7-1,3	0,2(0,4)			
Port closing difference between control-rod travel 9mm and max. = 3, - 4, ° camshaft						

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0	-	-	-	ca. 15	250	6,1	-	-
	x = 4,25						250	**		
ca. 40	11,5	770-780					260-320	= 2,0 mm		
2a	4,0	785-805								
	955	0,3-1,7								

\*\* Set idle-speed auxiliary spring at 2.0 mm control-rod travel, then 1/2 turn back.

## C. Settings for Fuel Injection Pump with Fitted Governor

<b>(2b)</b> Full-load stop		<b>(6)</b> Rotational-speed limit		<b>(3a)</b> Fuel delivery characteristics		Starting fuel delivery		<b>(5)</b>		<b>(4a)</b> Idle stop	
Test oil temp 40°C (104°F)		Note changed to )				Idle					
rev/min	cm <sup>3</sup> /1000 strokes	rev/min		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min		Control rod travel	mm
1	2	3		4	5	6	7	8		9	
750	100,5-102,5 (98,5-104,5)	770-780*	-	-	-	100	19,5-21,0 mm R <sub>w</sub>	-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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9.84

B10

B10

Testoil-ISO 4413



# Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 DAF 8,3 n 2

2. Edition

En

PE 6 A 95 D 410 RS 2575 Y RSV 250-750 A 7 B 2124 L

Komb.-Nr. 0 400 676 172

Specifications apply to test tubing 1 680 750 015

supersedes 6.83

company DAF

engine DHTD 825

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,0 - 2,1$   
(1,95-2,15) mm (from BDQRW = 7,5 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
750	13,2+0,1	11,1 - 11,3	0,4(0,6)			
250	6,0-6,2	0,7 - 1,3	0,2			
Port closing difference between control rod travel 9 mm and max. = 3 - 4° camshaft						

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 16	250	6,1	-	-
	x = 4,25						250	6,0-6,2		
ca. 40	12,2	770-780					260-320	2,0**		
2a	4,0	785-805								
	995	0,3-1,7								

The numbers denote the sequence of the test. Set idle-speed auxiliary spring at 2.0 mm control-rod travel, then 1/2 turn back.

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to )							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	110,5-112,5 (108,5-144,5)	770-780*	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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Testbench ISO 4113

B11

811

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 9,6 o

1. Edition

En

PE 6 A 95 D 410 LS 2587 RSV 300 - 1150 A 8 C 1002 - 1 L

Komb.-Nr. 0 400 676 173

supersedes

company KHD

engine F 6 L 413 F  
118 kW/2300 min<sup>-1</sup>  
Kompressor

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 - 1,6  
(1,45-1,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	9,5-9,6	7,9 - 8,1	0,35 (0,6)			
300	6,4-6,6	1,0 - 1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Control lever deflection in degrees			Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min							rev/min	Control rod travel mm		rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11			
loose	800	0,3 - 0,7	-	-	-	ca. 17	300	6,0	1150	9,5 - 9,6			
		x = 3,75					100	min. 9,5	500	9,8 - 9,9			
							300	6,4-6,6	740	9,5 - 9,7			
							540-600	= 2,0					
ca. 64	8,5	1190-1200											
2a	4,0	1250-1280											
	1415	0,3-1,4											

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min				Idle			
rev/min	cm <sup>3</sup> /1000 strokes	3		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
1150	79,0 - 81,0 (77,0 - 83,0)	1190-1200*	-	-	-	100	120,0-130	0 -	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.84

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B12

812

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 m  
1. Edition

En

PE 10 A 95 D 610/4 LS 2589 RQV 300-1150 AB 1086 L  
Komb.-Nr. 0 400 649 241  
1 - 10- 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2  
0 - 27- 72- 99-144-171-216-243-288-315°  $\pm 0,5^\circ$  ( $\pm 0,75^\circ$ )

supersedes  
company KHD  
engine F 10 L 413  
196 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $1,5 - 1,6$   
(1,45-1,65) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	8,5-8,6	7,9 - 8,1	0,35(0,6)			
300	6,4-6,6	1,0 - 1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1170	15,2-17,8	-	-	-	ca. 20	300	6,4-6,6	250	0,3-0,5
ca. 58	7,5 4,0 1350	1190-1200 1205-1235 0 - 1,0				420-540			600	2,8-3,1
									000	6,4-6,7
									200	8,8-9,2

Torque control travel a = 0,90 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed ②b limitation intermediate speed 4a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	79,0-81,0 (77,0-83,0)	1190-1200*	800	85,5-88,5 (83,0-91,0)	100	120,0-130,0 (117,0-133,0)	1150	8,5-8,6
							500	9,4-9,5
							990	9,1-9,3

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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B13

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 12

1. Edition

En

PES 6 A 85 D 410 RS 2591 RSV 325-1150 A 8 C 2020  
Komb.-Nr. 0 400 876 320

supersedes

company KHD

engine BF 6 L 913

117 kW/2300 min<sup>-1</sup>

Schlepper DX 7,10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,5 - 2,6$  mm (from BDC) RW =  $9,0 - 12,0$  mm  
(2,45-2,65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	12,4+0,1	8,6 - 8,7	0,3(0,45)			
325	7,4-7,6	1,0 - 1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 17	325	7,0	1200	12,4-12,5
	x = 4,0						100	min. 19,5	500	13,5-13,6
							325	7,4-7,6	1000	12,9-13,1
ca. 55	11,6	1240-1250					595-655	= 2,0		
2a	4,0	1320-1350								
	1485	0,3 - 1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min							
rev/min	cm <sup>3</sup> /1000 strokes			rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
LDA 1200	0,7 bar 85,5-86,5 (83,5-88,5)	1240-1250*		LDA 500	0 bar 65,0-67,0 (63,0-69,0)	100	110,0-120,0 (107,0-123,0)	0	

Checking values in brackets

\* 1 mm less control rod travel than col 2

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10.84

B14

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# D. Adjustment Test for Manifold Pressure Compensator

KHD 1 g 12

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm (1)
PES 6 A..RS2591 +RSV..A 8 C 2020	0,70	0	13,5 - 13,6
		0,28	12,2 - 12,3
		0,11	13,2 - 13,3
			12,6 - 12,8

## Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

①

# Test Specifications

## Fuel Injection Pumps ①

### and Governors

WPP 001/4 KHD 6,1 k 3

5. Edition

En

PES 6 A 85 D 410/3 RS 2592 RQV 300-1250 AB 1188 L

Komb.-Nr. 0 400 836 028

supersedes 5.84

company KHD

engine BE 6 L 913

118 kW/2500 min<sup>-1</sup>

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

 Port closing at prestroke 2,2 - 2,3  
 (2,15 - 2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,0+0,1	8,9 - 9,0	0,3(0,5)			
300	6,9-7,1	0,9 - 1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in 

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1290	15,2-17,8	-	-	-	ca. 13	100	min. 8,5	325	1,5-1,7
ca. 65	11,0 4,0	1290-1300 1375-1405				355-470	300	6,9-7,1	850 1150 1400	4,9-5,1 7,1-7,3 9,9

Torque control travel a = 0,8 mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	Control rod travel mm 10
LDA 1250	0,7 bar 88,5-89,5 (86,5-91,5)	1290-1300*	LDA 600	0,7 bar 82,5-84,5 (80,0-87,0)	100	110,-120,0 (107,0-123,0) = 17,1-17,5 mm RW	1250	12,0+0,1	
LDA 800	0,7 bar 85,0-88,0 (83,0-90,0)		LDA 500	0 bar 59,0-61,0 (57,0-63,0)			500	12,8+0,1	
							775	12,5+0,2	
							1025	12,1+0,3	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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# D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 k 3

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel diminution difference
	Gauge pressure : bar	Gauge pressure : bar	mm (1)
PES 6 A..RS 2592 + RQV..AB 1188 L	0,70	0	12,8 - 12,9
		0,26	10,9 - 11,1
		0,19	12,4 - 12,5
			11,9 - 12,1

## Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 6

4. Edition

En

PES4A85D 410/3 RS 2610 RSV 325-1150 A8B 2102 L  
A8C 2102 L

Komb.-Nr. 0 400 864 051

supersedes 9.83  
company KHD  
engine F4L913  
55 kW Schlepper  
D 7807-S 16

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6  
(2,45-2,65) mm (from BDC)

Test oil ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1175	11,2+0,1	6,7-6,8	0,3(0,45)			
325	8,7-8,9	0,9-1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7 X = 4,0	-	-	-	ca. 17	325	8,3	1150	11,2-11,3
							325	8,7-8,9	500	11,8-11,9
ca. 53	10,2	1215-1225					450-510	2,0	870	11,4-11,6
②a	4,0	1270-1300								
	1400	0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min				Idle			
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	4	5	6	7	8	9	10
1175	66,5-67,5 (64,5-69,5)	1215-1225*	800	61,0-63,0 (58,5-65,5)	-	-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

9.84

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B18

B 18



# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 6,2 e 3

1. Edition

En

PES 6 A 90 D 320/3 RS 2660 RSV 325-1200 AOC 2182-1R

Komb.-Nr. 0 400 866 114

supersedes

company MWM

engine TD 226 B-6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $(2,95-3,05)$  mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1200	11,0+0,1	9,9-10,0	0,3(0,45)			
325	5,9-6,1	0,8-1,4	0,25(0,4)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 17	325	5,5	1200	11,0-11,1
	X = 3,25						325	5,9-6,1	500	11,5-11,6
ca. 45	10,0	1240-1250					455-515	= 2,0	1110	11,2-11,4
2a	4,0	1285-1315								
	1455	0,3-1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note charged to 1 rev/min							
rev/min	cm <sup>3</sup> /1000 strokes			rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
LDA 1200	0,7 bar 99,0-100,0 (97,0-102,0)	1240-1250*		LDA 500	0 bar 62,0-63,0 60,0-65,0)	100	135,0-145,0 (132,0-148,0) =19,5- 21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

9.84

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Testoil-ISO 4113

# D. Adjustment Test for Manifold Pressure Compensator

MWM 6,2 e 3 -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting Gauge pressure - bar	Measurement Gauge pressure - bar	Control rod travel diminution difference mm (1)
PES6A..RS2660 +RSV..AOC2182-1R	0,70	0 0,46 0,21	11,5-11,6 9,2-9,3 11,0-11,1 9,8-10,0

## Notes

(1) when n =

rev/min and  
gauge pressure =

bar ( = maximum full-load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 6,0 a

1. Edition

En

PES 6 A 90 D 410 RS 2667 RQV 300-1400 AB 1065-4 L

Komb.-Nr. 0 400 846 522

Specifications apply to test tubing 1 680 750 015

supersedes

company Daimler-Benz

engine OM 366

100 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,25-2,35}{(2,20-2,40)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,1+0,1	6,4-6,5	0,3(0,45)			
300	8,7-8,9	0,9-1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 21	100 300 580-640=2,0	min.10,3 8,7-8,9	250 630 020 400	0,7-0,9 3,8-3,9 5,3-5,4 7,7
ca. 65	10,1 4,0 1630	1440-1450 1545-1575 0-1,0				③a				

Torque control travel a = 1,1 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed ②b limitation intermediate speed 4a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤ travel Control rod travel mm	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	mm 9
1400	63,5-64,5 (61,5-66,5)	1440-1450*	500 900	51,0-54,0 (48,5-56,5) 53,5-56,5 (51,0-59,0)	100	78,0-88,0 (75,0-91,0) =16,4-17,0 mm RW	1400 500 900 1100	11,1+0,1 12,2+0,1 11,7+0,2 11,5+0,3

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Test Specifications Fuel Injection Pumps and Governors

40

1A

WPP 001/4 KHD 12,6 b 1

1. Edition

En

PE 8 AM 80 D 310 RS 2004 RSV 200-1150 A 4 C 73 L

Komb.-Nr. 0 405 078 204

A 4 B 73 DL

supersedes  
company KHD  
F 8 L 714 A  
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,15-2,25</sup>  
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1000	12,0	7,4 - 7,8	0,4			
200	9,0 15,0 9,0	3,9 - 4,7 10,3 - 11,4 2,8 - 3,6				

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control													
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11												
ca. 72	1150	16,0	without auxiliary spring			ca. 25	200	6,0	1130	0												
	1200	9,0					100	19,0-21,0	900	0												
	1230	4,5									200	5,7- 6,3	700	0,7 - 0,9								
															300	3,6- 5,0	400	1,1 - 1,3				
2a	1180	11,0-13,0	with auxiliary spring																			
	1200	7,0-10,5									400	0,4- 3,4										
	1250	2,2- 4,5													550	0- 1,0						
	1350	0 - 1,0																				

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit	3a Fuel delivery characteristics		Starting fuel delivery idle		4a Idle stop	
Test oil temp 40°C (104°F)								
rev/min 1	cm <sup>3</sup> /1000 strokes 2	Note changed to ) rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	72,0 - 73,0 (70,5 - 74,5)		800	75,0 - 77,0 (37,5 - 78,5)	-	-	-	-
			600	75,5 - 77,5 (74,0 - 79,0)				

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.84

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B22

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 6,0 m

4. Edition

En

Test ISO 4113

PES 6 MW 100/320 RS 1004  
RQV 300... 1250 MW 20  
Komb.-Nr. 0 03 446 116

supersedes 5.82  
Volvo  
company ID 60 B  
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,8-2,9}{(2,75-2,95)}$  mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,6+0,1	8,35-8,55	0,35(0,6)			
300	5,4-5,6	0,95-1,35	0,35(0,55) 0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1325 1500	15,2-17,8 0 - 1,0				ca. 12	100 300	min.6,9 5,4-5,6		
ca. 63	9,6 4,0	1290-1300 1340-1370				3a	300-390 = 2,0			

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 83,5-85,5 (81,5-87,5)	1290-1300*	LDA 500	0 bar 52,5-54,5 (50,0-57,0)	100	19-21 mm RW 120-130 (117-133)		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

B23

022

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# D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure VOL 6,0 m  
increasing

Pump/governor	Setting	Measurement	Control rod travel <sup>(1)</sup> diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1004 with MW 20	0,7	0,27 0,56 0	10,6 - 10,7 9,8 - 9,9 10,4 - 10,5 10,0 - 10,1

Notes

(1) when n =

rev/min and  
gauge pressure =

bar (- maximum full-load control rod travel)

Testoil-ISO 4113

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 6,0 V 1

1. Edition

En

RES 6 MW 100/320 RS 1004  
RQV 300-1250 MW 33  
0 403 446 125

supersedes  
company Volvo  
engine TD 60 B  
116,5 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,80-2,90$   
( $2,75-2,95$ ) mm (from BDC) RW =  $9,0 - 12,0$  mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,6+0,1	8,35-8,55	0,35(0,6)			
300	5,4-5,6	0,95-1,35	0,35(0,55)			
500	10,0+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1320 1500	15,2-17,8 0-1,0				ca. 11	300 100	5,4-5,6 min.6,9		
ca. 59	9,6 4,0	1290-1300 1390-1420				③a	320-500			

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery Idle switching point (8)		Torque-control travel (5) Control rod travel mm	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 83,5-85,5 (81,5-87,5)	1290-1300*	LDA 500	0 bar 52,5-54,5 (50,0-57,0)	100 300	120,0-130,0 (117,0-133,0) 9,5-13,5 (7,0-16,0)		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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C1

CA

# D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure VOL 6,0 V 1  
increasing

Pump/governor	Setting Gauge pressure - bar	Measurement Gauge pressure = bar	Control rod travel: diminution difference mm (1)
RS 1004 with MW 33	0,7	0,27 0,56 0	10,6 - 10,7 9,8 - 9,9 10,4 - 10,5 10,0 - 10,1

Notes

(1) when n =

rev/min and  
gauge pressure =

bar ( - maximum full-load control rod travel)

Testoil-ISO 4113



①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 6,0 V

1. Edition

En

**Testoil-ISO 4113**

PES 6 MW 100/320 RS 1004

RQV 300-1150 MW 54

0 403 446 148

1- 5- 3 - 6 - 2 - 4

0-60-120-180-240-300  $\pm$  0,50 (0,75)

supersedes

company Volvo BM

engine TD 60 LLK

125 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $2,80-2,90$   
 $(2,75-2,95)$  mm (from BDC)  $RW = 9,0 - 12,0$  mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,4+0,1	9,6-9,8	0,35 (0,6)			
300	5,0-5,1	1,0-1,4	0,35 (0,55)			
1000	11,4+0,1		0,5 (0,7)			
700	10,7+0,1					

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150 1300	15,2-17,8 0-1,0				ca. 14	300 100	5,0-5,1 min.6,8	1100 700 300	8,4-8,6 3,6-3,8 1,0-1,5
ca. 51	10,4 4,0	1190-1200 1235-1265				③a	320-450			

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b intermediate speed 4a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤ travel Control rod travel mm	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	mm 9
LDA 700	0,7 bar 96,0-98,0 (94,0-100,0)	1190-1200*	LDA 1000	0,7 bar 98,0-102,0 (95,5-104,5)	100 300	130,0-140,0 (127,0-143,0) 10,0-14,0 (7,5-16,5)		
			LDA 700	0 bar 82,0-84,0 (79,5-86,5)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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C3

# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure VOL 6,0 V  
increasing

Pump/governor	Setting Gauge pressure - bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
RS 1004 with MW 54	0,7	0,5 0,38 0	11,4 - 11,5 11,2 - 11,3 10,8 - 10,9 10,7 - 10,8

Notes

(1) when n =

rev/min and  
gauge pressure =

bar ( = maximum full-load control rod travel)

Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps **(1A)** and Governors

**40**

WPP 001/4 PEN 6,0 e

4. Edition

En

Testoil-ISO 4113

PES 6 MW 100/320 RS 1004 RSV 325-1250 MWOA 308  
0 403 476 011

1- 5- 3 - 6 - 2 - 4  
0-60-120-180-240-300  $\pm$  0,50 (0,75)

supersedes 1.84  
company Volvo/Penta  
TD 60 D  
engine 118 kW (160 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,80-2,90}{(2,75-2,95)}$  mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,5+0,1	8,95-9,15	0,35(0,6)			
325	4,3-4,5	1,0 - 1,3	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

<b>(1)</b> Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			<b>(4)</b> Lower rated speed Control-lever deflection in degrees 7			<b>(3)</b> Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	
loose	800	0,3-0,7				ca. 21	325	3,9	350	11,1+0,1
	x =	4,0					325	4,3-4,5	500	10,8+0,1
ca. 49	1290-1330 =	9,6					380-430 =	2,0	1250	10,5+0,1
<b>(2a)</b>	1335-1365 =	4,0								
	1450 =	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

<b>(2b)</b> Full-load stop Test oil temp 40°C (104°F) rev/min 1		<b>(6)</b> Rotational-speed limit Note changed to ) rev/min 3		<b>(3a)</b> Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		<b>(5)</b> <b>(4a)</b> Idle stop Control rod travel mm 9	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes 7		rev/min 8	
1000	89,5-91,5 (87,5-93,5)	1290-1300*				100	min. 140	325	4,4
						325	10,0-13,0 (7,5-15,5)		

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.84

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C5

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 8,1 b

3. Edition

En

Testoil-ISO 4113

PES 6 MW 100/720 RS 1008  
0 403 446 112

RQV 300 ... 1300 MW 13 DR

supersedes 5.82  
company: Fiat  
engine 8360.05

1 - 5 - 3 - 6 - 2 - 4  
0 - 60 - 120 - 180 - 240 - 300 ± 0,5 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,50-2,60 mm (from BDC) RW 9,0-12,0

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	12,5 <sup>+0,2</sup>	8,85-9,05	0,35 (0,6)			
300	7,4-7,6	0,95-1,35	0,35 (0,55)			
800	13,0 <sup>+0,2</sup>		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1300 1600	15,2-17,8 0,0-1,0	-	-	-	10-18	100 300	min. 9,5 7,5-7,6	300 700-770	0,8-0,9 3,4
56-64	11,6 4,0	1350-1360 1440-1470				③a	380-485		1340-1350	7,95

Torque control travel a = 0,5 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b limitation intermediate speed	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤ travel	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1300	88,5-90,5 (86,5-92,5)	1350-1360*	800	86,5-90,5 (84,5-92,5)	100 RW = Entriegelung 12 V 300	135-145 19,7-20,4 9,5-13,5 (7,0-16,0)	1200 12,5-12,7 900 13,0-13,2	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

①

# Test Specifications Fuel Injection Pumps and Governors

① WPP 001/4 PER 10,0 a

7. Edition

En

PES 8 MW 100/320 RS 1011  
RQV 375... 1300 MW 18  
Komb.-Nr. 0 403 448 101

supersedes 82  
company Perkins  
engine AV 8.640

Port-closing mark on rear side

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,50-2,60 \\ (2,45-2,65) \end{matrix}$  mm (from BDC) bei RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	10,8+0,1	9,45-9,65	0,35 (0,6)			
375	4,9-5,1	1,05-1,45	0,35 (0,55)			
800			0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1300	15,2-17,8	30-50	700	4,7	ca. 12	100	min. 6,6	375	1,2-1,3
	1600	0,1-1,0		450	8,3		375	4,9-5,1	515-575	2,6
ca. 65	9,8	1365-1375					520-580 = 2,0		1370-1390	8,5
	4,0	1435-1465				3a				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1300	94,5-96,5 (92,5-98,5)	1365-1375*		89,0-91,0 (87,0-95,0)	100	min. 140 10,5-14,5 (8,5-17,0) Einschaltpunkt 100-290 (80-310)			
					375				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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C7

27

Port closing and TDC markings

Comb.-No.	<sup>0</sup> camshaft between port-closing and TDC	at control-rod travel 21 mm (Start)
... 101	at control-rod travel 10,5 mm	10,5°
	17°	

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5 g 1

1. Edition

En

Test ISO 4113

 PES 6 MW 90/720 RS 1015-1 RQV 300-1600 MW 49  
 0 403 446 146

supersege:

company: IVECO-Fiat

engine: 8062.24.668

140 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $\frac{2,50-2,60}{(2,45-2,65)}$  mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,4+0,1	7,6-7,8	0,35(0,6)			
375	6,6-6,7	1,0-1,4	0,35(0,55)			
1600	10,4+0,1		0,5 (0,7)			
500	8,9-9,0					

Adjust the fuel delivery from each outlet according to the values in

 \* Note: Idle adjustment must be made at 375 min/1. The rotational speed  
 n = 300 min/1 has been shown on the name plate.

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1640 1900	15,2-17,8 0-1,0				ca. 16	375 100	6,6-6,7 min.9,0		
ca. 63	9,4 4,0	1640-1650 1770-1800								

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b)	Fuel delivery characteristics high idle speed (5a)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm³/1000 strokes	rev/min (4a)	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1000	0,5 bar 76,0-78,0 (74,0-80,0)	1640-1650*	LDA 1600	0,5 bar 82,0-86,0 (80,0-88,0)	200	160,0-180,0 (157,0-183,0)		
			LDA 500	0 bar 42,5-44,5 (40,5-46,5)	375	10,0-14,0 (9,0-15,0)		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84



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# D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure FIA 5,5 g 1  
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
RS 1015 with RQV..MW 49	0,5	0 0,21 0,18	10,4 - 10,5 8,9 - 9,0 10,0 - 10,1 9,3 - 9,4

Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

**Testoil-ISO 4113**



①

# Test Specifications

## Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8 f

4. Edition

En

PES 6 MW 100/320 RS 1016  
0 403 446 129

RQV 300-1400 MW 25,2

supersedes 84

compares RVI

1- 5- 3 - 6 - 2 - 4  
0-60-120-180-240-300

\* Start-of-delivery mark 8° after  
start of delivery with control-rod  
travel 10.5 mm.

engine: MIDR 06.02-12  
125 kW (170 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke 3,00-3,10  
(2,95-3,15) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,1+0,1	9,1-9,3	0,35(0,6)			
300	5,8-5,9	0,95-1,35	0,35(0,55)			
900	11,1+0,1		0,5 (0,7)			
500	9,4+0,1		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1400 1700	15,2-17,8 0-1,0	-	-	-	ca. 13	300 200	5,8-5,9 max.7,5		
ca. 62	10,1 4,0	1455-1465 1575-1605				③a	490-550 = 2,0			

Torque control travel = mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1400	0,7 bar 91,0-93,0 (89,0-95,0)	1455-1465*	LDA 900	0,7 bar 86,0-90,0 (84,0-92,0)	100	94,0-104,0 (91,0-107,0)		
			LDA 500	0 bar 52,0-54,0 50,0-56,0	300	9,5-13,5 (7,0-16,0)		
					100-230	(80-250)		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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# D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure RVI 8,8 f  
increasing

Pump/governor	Setting Gauge pressure - bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
RS 1016 with RQV..MW 25-2	0,12	0,16 0 0,7	9,9 - 10,0 10,7 - 10,8 9,4 - 9,5 11,1 - 11,2

Notes

(1) when n =

rev/min and  
gauge pressure -

bar (= maximum full-load control rod travel)

**Testoil-ISO 4113**

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 RVI 8,8 g

3. Edition

En

Testoil-ISO 4113

PES 6 MW 100/320 RS 1016

RQ 750 MW 42

supersedes 11.82

0 403 446 130

company RVI

engine MIDR 06.02-12  
100 kW (136 PS)
 1 - 5 - 3 - 6 - 2 - 4  
 0 - 60 - 120 - 180 - 240 - 300  $\pm$  0,50 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

(2,95-3,15)

mm (from ED) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,5+0,1	13,35-13,55	0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9 rev/min 10		Torque control rev/min 11 Control rod travel mm 12	
785	3,9-4,1			13,5 4,0	750-755 785-795						
850	0,0-1,0										

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm <sup>3</sup> /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm <sup>3</sup> /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm <sup>3</sup> /1000 strokes/mm 7	
700	133,5-135,5 (131,5-137,5)					100	19,0-21,0 RW min. 80,0

Checking values in brackets

. 10.84

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 PER 10,0 f

2. Edition

En

Test ISO 1113

PES 8 MW 100/720 RS 1020 RQV 500-1125 MW 30  
 0 403 448 107  
 1 - 8 - 7 - 5 - 4 - 3 - 6 - 2  
 0 - 45 - 90 - 135 - 180 - 225 - 270 - 315  $\pm$  0,50(0,75)

supersedes  
 company Perkins  
 engine V8.640 GR  
 134 kW (182 PS)

Port-closing mark on rear side

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,50-2,60 mm (from BDC) RW 9,0-12,0 mm  
 (2,45-2,65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1125	9,2+0,1	7,75-7,95	0,35(0,6)			
500	4,2-4,4	0,95-1,35	0,35(0,55)			
800	9,2-9,3		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1125	15,2-17,8	-	-	-	ca. 14	500	4,2-4,4		
	1300	0 - 1,0					100	min. 5,9		
ca. 64	8,2	1190-1200					590-650=2,0			
	4,0	1225-1255				③a				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1125	77,5-79,5 (75,5-81,5)	1190-1200 *	800	73,0-77,0 (71,0-79,0)	100	19,0-21,0 RW min. 140,0		
						100-400 (80-420)		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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C14

C14

Port closing and TDC markings

Comb. - No.

° camshaft between port-closing  
and TDC

... 107

at control-rod travel 10,5 mm

15°

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 4,5 e

2. Edition

En

Testoil-ISO 4113

PES 4 MW 100/320 RS 1102 RQV 300-1100 MW 39-5

0 403 444 107

supersedes 7.84  
Volvo  
company D 45  
engine 85 kW

1 - 3 - 4 - 2  
0 - 90 - 180 - 270  $\pm$  0,50 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0+0,1	11,1-11,3	0,35(0,6)			
300	5,8-5,9	1,3-1,7	0,35(0,55)			
1000	12,0+0,1		0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200 1350	15,2-17,8 0-1,0				ca. 10	300 100	5,6-5,7 min. 8,1		
ca. 43	11,1 4,0	1140-1150 1210-1240				③a	320-650			

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	111,0-113,0 (109,0-115,0)	1140-1150*	1000	112,0-116,0 (110,0-118,0)	100	19,0-21,0 mm RW 130,0-140,0 (127,0-143,0)		
					300	13,0-17,0 (10,5-19,5)		
					100-220	(80-250)		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VOL 4,5 g

3. Edition

En

PES 4 MW 100/320 RS 1102 RSV 300-1000 MW 1 A 315

superseded by Volvo  
company TD 45  
engine 84 kW

0 403 474 001

\*At the minimum full-load stop, set a control-rod travel of 12.6-12.7 mm with  $n = 1000 \text{ min/1}$ . At the maximum full-load stop, make the full-load adjustment according to test specifications.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90 mm (from BDQ) bei RW = 9,0-12,0 mm  
(2,75-2,95)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
700*	12,0+0,1	11,1-11,3	0,35(0,6)			
300	5,6-5,7	1,3-1,7	0,35(0,55)			
1000	12,0+0,1		0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca. 12	300	5,1-5,2		
							300	5,6-5,7		
							360-420	2,0		
ca. 52	11,0	1040-1050								
2a	4,0	1055-1085								
	0,3-1,7	1200								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	3	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	Control rod travel mm
1	2		4	5	6	7	8	9	
700	111,0-113,0 (109,0-115,0)	1040-1050*	1000	112,0-116,0 (110,0-118,0)	300	13,0-17,0 (10,5-19,5)	300	5,6-5,7	

Checking values in brackets

\* 1 mm less control rod travel than col 2

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10.84

Testoil-ISO 4113

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 12,7 t 1

1. Edition

En

PE 8 MW 100/720 LS 1117  
RQ 300/1000 MW 52  
0 403 548 005

supersedes

company KHD

engine F 8 L 413 F 2  
150 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\overset{3,10-3,20}{(3,05-3,25)}$  mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	10,7+0,1	9,2-9,4	0,35(0,6)			
300	7,1-7,2	1,1-1,5	0,35(0,55)			
1000	9,5-9,6		0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 9		Control rod travel mm 12	
520	19,2-20,8	520	20,0	8,5	1045-1060	300	7,1	100	min. 9,1	975	9,5-9,6
1200	0 - 1,0			4,0	1080-1110			300	7,1-7,2	650	10,7-10,8

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes/mm 7	
600	92,0-94,0 (90,0-96,0)			1000	87,0-89,0 (84,5-91,5)	100	140,0-150,0 (137,0-153,0)
						300	11,0-15,0 ( 8,5-17,5)
						100- 230	(80-250)

Checking values in brackets

10.84

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②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 12,7 t

1. Edition

En

Testoil-ISO 4113

 PE 8 MW 100/720 IS 1117  
 RQ 300/1000 MW 52-1  
 O 403 548 009

 supersedes  
 company KHD  
 engine F 8 L 413 F Z  
 177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke 3,10-3,20  
 (3,05-3,25) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
650	11,4+0,1	10,6-10,8	0,35 (0,6)			
300	7,5-7,6	1,1-1,5	0,35 (0,55)			
1150	10,0+0,1		0,5 (0,7)			

 Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min 1	mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	19,2-20,8	550	20,0	9,0	1195-1210	300	7,5	100	min. 9,0	1150	10,0-10,1
				4,0	1240-1270			300	7,5-7,6	650	11,4-11,5
1350	0 - 1,0							350-380	= 2,0	850	10,5-10,8

 Torque-control travel  
 on flyweight assembly dimension a =  mm

 Speed regulation: At 

 1 mm less control  
 rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	Control rod travel mm 3a	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	Control rod travel mm 6
650	106,0-108,0 (104,0-110,0)			1150	96,0-98,0 (93,5-100,5)	100	130,0-140,0 (127,0-143,0)
						300	11,0-15,0 (8,5-17,5)
						100-230	(80-250)

Checking values in brackets

10.84

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②

# Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 12,7 t 2  
1. Edition

En

Testoil ISO 4113

PE 8 MW 100/720 LS 1117  
RQ 300/1150 MW 53  
0 403 548 006  
1- 8- 7- 2 - 6 - 5 - 4 - 3  
0-45-90-135-180-225-270-315

supersedes -  
company KHD  
engine BF 8 L 413 FST  
206 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,10-3,20$  mm (from BDC) RW-9-12 mm  
(3,05-3,25)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	13,3+0,1	12,3-12,5	0,35(0,6)			
300	7,5-7,6	1,1-1,5	0,35(0,55)			
1150	12,3+0,1		0,5 (0,7)			
400	12,4+0,1					

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min 1	mm 2	rev/min 3	mm 4	mm 5	rev/min 6	rev/min 7	mm 8	rev/min 9	mm 10	rev/min 11	mm 12
600	19,2-20,8	600	20,0	11,3 4,0	1195-1210 1230-1260	300	7,5	100 300	min.9,1 7,5-7,6	1150 800 650	12,3-12,4 13,0-13,3 13,3-13,4
1350	0 - 1,0										

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /- 1000 strokes 2	rev/min 3	mm 3a	rev/min 4	cm <sup>3</sup> /- 1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
LDA 800	0,8 bar 123,5-125,5 (121,5-127,5)			LDA 1150	0,8 bar 118,0-120,0 (115,5-122,5)	100	140,0-150,0 (137,0-153,0)
				LDA 400	0 bar 96,0-98,0 (93,5-100,5)	300	11,0-15,0 (8,5-17,5)
						100- 230	(80-250)

Checking values in brackets

10.84

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C20

C40

# D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure KHD 12,7 t 2  
increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm (1)	
LS 1117 with MW 53	0,8	0,19	13,3 - 13,4	
		0,13	13,0 - 13,1	
		0	12,6 - 12,7	
			12,4 - 12,5	

Notes

(1) when n =

rev/min and  
gauge pressure -

bar ( = maximum full-load control rod travel)

Testoil-ISO 4113

En

C21

C2

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 13,4 d

1. Edition

En

Testoil: ISO 4113

 PE 8 MW 100/720 LS 1117  
 RQ 300/1075 MW 53-1  
 0 403 548 008

supersedes\_

company KHD

 engine BF 8 L 513 T  
 177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

 3,10-3,20  
 (3,05-3,25)

mm (from BDC)

RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	13,2+0,1	12,3-12,5	0,35 (0,6)			
300	6,7-6,8	1,6-2,0	0,35 (0,55)			
1075	11,2+0,1		0,5 (0,7)			
400						

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	19,2-20,8	550	20,0	10,2 4,0	1120-1135 1155-1185	300	6,7	100 300	min. 8,3 6,7-6,8	600 640 1040 1075	13,2-13,3 13,2-13,3 11,2-11,3 11,2-11,3
1250	0 - 1,0										

 Torque-control travel  
 on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
LDA 600	0,8 bar 123,5-125,5 (121,5-127,5)			LDA 1075	0,8 bar 114,0-116,0 (111,5-118,5)	100	140,0-150,0 (137,0-153,0)
				LDA 400	0 bar 96,0-98,0 (93,5-100,5)	300	16,0-20,0 (13,5-22,5)
						100-230	(80-250)

Checking values in brackets

10.84

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

KHD 13,4 d

Pump/governor	Setting	Measurement	Control rod travel <sup>(1)</sup>
	Gauge pressure - bar	Gauge pressure = bar	diminution difference mm (1)
LS 1117 with MW 53-1	0,8	0,25	13,2 - 13,3 13,1 - 13,2 11,4 - 11,6

Notes

(1) when n =

rev/min and  
gauge pressure -

bar ( = maximum full-load control rod travel)

**Testoil-ISO 4113**

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 20,9 r

1. Edition

En

PE12P 100 A 520/4 LS 823

RQV 250-1200 PA 668-3

supersedes

company MAN

engine D 2542 ME

Komb.-Nr. 0 401 840 093

1 - 5-9- 8 - 3 -4 -11 - 10 - 2 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315° ( $\pm 0,75^\circ$ )

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,1-3,2$  mm (from BDC) Zyl.12; RW = 9,0- 12,0 mm  
(3,05-3,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	13,8+0,1	10,8-11,0	0,35(0,6)			
250	10,4+0,1	1,9-2,5	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1240	15,2-17,8	-	-	-	ca. 18	100	min. 12,0	250	1,2-1,3
ca. 65	12,8 4,0 1500	1240-1250 1305-1355 0 - 1,0				290-395 (3a)	250	10,4-10,6	450 950 1200	2,8-3,2 6,0-6,2 8,1

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1200	108,0-110,0 (106,0-112,0)	1240-1250*	-	-	250	19,0-25,0 (16,5-27,5)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

9.84

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①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 q 1

5. Edition

En

PES 6 P 110 A 720 LS 375 RQV 250-1100 PA 373 DR

Komb.-Nr. 0 402 046 180

supersedes 5.84

company: MAN

engine: D 2566 MTF  
206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,0 - 3,1$   
(2,95-3,15) mm (from BDC) Zyl. 6: RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	2,4+0,1	14,6-14,9	0,4(0,75)			
250	7,3-7,5	1,0-1,5	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel rev/min mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1140	15,2-17,8	-	-	-	ca. 13	100	min. 8,9	325	1,7-2,2
ca. 65	11,4 4,0	1140-1150 1225-1255				390-510	250 520-	7,3-7,5 580=2,0	900 1100	6,2-6,4 8,0-8,2

Torque control travel a = 0,9 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 146,0-149,0 (143,5-151,5)	1140-1150*	LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	225,0-245,0 (221,0-249,0)	1100	12,4+0,1
LDA 700	0,7 bar 157,0-161,0 (154,0-164,0)		LDA 500	0 bar 110,0-113,0 (107,5-115,5)	250	10,0-15,0 (7,5-17,5)	700 900 1000	13,3+0,1 13,0+0,2 12,5+0,3

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.84

Testoil-ISO 4113

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D1

# D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 1 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure - bar	Gauge pressure - bar	diminution difference mm (1)
PES 6 P..LS 375 + RQV..PA 373 DR	0,70	0	13,3-13,4
		0,20	11,3-11,4
		0,32	11,8-11,9
			12,6-12,8

## Notes

(1) when n = rev/min and gauge pressure = bar ( = maximum full load control rod travel)



①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 19,1 h1

1. Edition

En

PE 12 P 100 A 320 LS 826 RQV 350-1250 PA 251 R

Komb.-Nr. 0 401 840 038

supersedes

company: Daimler-Benz

engine OM 404 ECE

1-5 -9 -8 - 3 - 4 - 11- 10-2 - 6 - 7 - 12 °  
 0-15-60-75-120-135-180-195-240-255-300-315 °  $\pm 0,5^\circ$  ( $\pm 0,75^\circ$ )

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>3,2,3,3</sup>  
 (3,15-3,35) mm (from BDC) <sup>7y1, 12</sup>

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1230	12,0+0,1	10,5-10,7	0,3(0,6)			
350	7,6-7,8	1,0-1,5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 68	1250	15,2-17,8	-	-	-	ca. 16	100	min. 9,3	300	0,4-1,4
ca. 66	11,0	1280-1290					350	7,6-7,8	620	2,6-3,6
	4,8	1355-1385							930	4,5-5,0
	1500	0-1,0				350-550			1250	7,8

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b limitation intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min cm <sup>3</sup> /1000 strokes		Starting fuel delivery Idle switching point rev/min cm <sup>3</sup> /1000 strokes ⑥		Torque-control ⑤ travel rev/min Control rod travel mm	
1	2	3	4	5	6	7	8	9
1230	105,0-107,0 (103,0-109,0)	1280-1290*	1230	77,0-79,0 (74,5-81,5)	100	110,0-130,0 (106,0-134,0)	-	-
				**				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

\*\* Set at the reduced-delivery stop.

9.84

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 19,1 h

3. Edition

En

PE12P100A320 LS 826 RQV 350-1250 PA 378 R

Komb.-Nr. 0 401 840 042

1- 5-9- 8 - 3 - 4 - 11-10 - 2 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315°  $\pm 0,5^\circ$  ( $\pm 0,75^\circ$ )

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 1.81

company Daimler-Benz

OM 404 ECC

engine 316 kW

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,2-3,3}{(3,15-3,35)}$  mm (from BDC) Zyl. 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1230	12,0+0,1	10,7-10,9	0,3(0,6)			
350	8,3-8,5	0,9-1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 68	1250	15,2-17,8	-	-	-	ca. 16	100	min. 10,0	300	0,9-1,1
ca. 66	11,0 4,8 1500	1280-1290 1355-1385 0 - 1,0				400-700 (3a)	350	8,3-8,5	620 930 1250	3,6-3,9 5,3-5,6 8,3

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1230	107,0-109,0 (105,0-111,0)	1280-1290*	1230	78,0-80,0 (76,0-82,0) **	100	120,0-140,0 (116,0-144,0)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

\*\* Set at the reduced-delivery stop.

9.84

Testspec ISO 4113

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①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 20,9 a 2

1. Edition

En

PE 12 P 100 A 520/4 LS 834 RQV 250-750 PA 668-1

Komb.-Nr. 0 401 840 091

supersedes

company MAN

engine D 2542

185 kW

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>3,1-3,2</sup>  
(3,05-3,25) mm (from BDC) Zyl. 12; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,1+0,1	8,3-8,5	0,35(0,6)			
250	6,4-6,6	1,3-1,9	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	870	15,2-17,8	-	-	-	ca. 11	100	min.8,0	250	1,2-1,3
ca. 58	11,2 4,0 1000	1190-1200 850-880 0-1,0				290-395	250	6,4-6,6	600	4,3-4,7
						③a			750	6,5

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed 4a	Fuel delivery characteristics high idle speed 5b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	83,0-85,0 (81,0-87,0)	1190-1200*	-	-	-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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D5

D5

①

# Test Specifications Fuel Injection Pumps and Governors

① WPP 001/4 MAN 20,9 m 2

1. Edition

En

PE 12 P 120 A 520 LS 836-1 RQV 250-1150 PA 668

supersedes  
company MAN

1 - 5 - 9 - 8 - 3 - 4 - 11- 10- 2 - 6 - 7 - 12  
 0 - 15- 60- 75-120-135-180-195-240-255-300-315 $\pm 0,5^\circ$ ( $\pm 0,75^\circ$ ) engine D 2542 MLE  
 478 kW

Values only apply to test nozzle-and-holder  
 assembly 1 688 901 019 and fuel-injection test  
 tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,3 $\pm 0,1$	17,5 - 17,7	0,5(0,9)			
250	6,0-6,2	2,1 - 2,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1175	15,2-17,8	-	-	-	ca. 11	100	min. 7,6	250	1,2-1,3
ca. 64	9,3 4,0 1400	1190-1200 1265-1295 0 - 1,0				290-395	250	6,0-6,2	550 950 1150	3,5-4,0 6,6-6,8 8,3

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed (2b) limitation intermediate speed (4a)		Fuel delivery characteristics (5a) high idle speed (5b)		Starting fuel delivery (6) idle switching point		Torque-control (5) travel	
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1150	175,0-177,0 (172,0-180,0)	1190-1200*		-	-	100	190,0-210,0 (186,0-214,0)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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①

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MAN 20,9 m 3

1. Edition

En

PE 12 P 120 A 520 LS 836-1 RQV 250-1150 PA 670

1 - 5 - 9 - 8 - 3 - 4 - 11 - 10 - 2 - 6 - 7 - 12

0 - 15- 60- 75-120-135-180-195-240-255-300-315° $\pm 0,5^\circ$ ( $\pm 0,75^\circ$ )

Values only apply to test nozzle-and-holder

assembly 1 688 901 019 and fuel-injection test

tubing 1 680 750 067

supersedes...

company: MAN

engine: D 2542 MLE

456 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 3,0 - 3,1  
(2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,9 $\pm$ 0,1	18,5 - 18,9	0,5(0,9)			
250	6,5-6,7	2,2 - 2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

1

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1170	15,2-17,8	-	-	-	ca. 11	100	min. 8,1	250	1,2-1,3
ca. 64	9,9 4,0 1400	1190-1200 1270-1300 0 - 1,0				290-395	250	6,5-6,7	550 950 1150	3,5-4,0 6,6-6,8 8,3

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 185,0-189,0 (182,0-192,0)	1190-1200*	LDA 1150	0 bar 161,0-165,0 (158,0-168,0)	100	200,0-220,0 (196,0-224,0)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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D7

# D. Adjustment Test for Manifold Pressure Compensator

MAN 20,9 m 3 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 12 P..LS 836-1 + RQV..PA 670	0,70	0 0,22 0,15	10,9 - 11,0 9,8 - 9,9 10,5 - 10,6 10,0 - 10,2

## Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 20,9 d 1

1. Edition

En

PE 12 P 110 A 520 LS 839 RQV 250-1150 PA 670

Komb.-Nr. 0 401 840 095

supersedes-

company: MAN

engine: D 2542 MTE  
386 kW

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,0-3,1$  mm (from BDC). 7yl. 12: RW = 9,0-12,0 mm  
(2,95-3,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,3+0,1	14,2-14,5	0,4(0,75)			
250	6,8-7,0	1,4-1,9	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1170	15,2-17,8	-	-	-	ca. 12	100	min.8,4	250	1,2-1,3
ca. 65	11,3 4,0 1450	1190-1200 1295-1325 0-1,0					250	6,8-7,0	550	3,5-4,0
									950	6,6-6,9
									150	8,3

Torque control travel a = — mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F) 2		Rotational speed limitation intermediate speed 4a	Fuel delivery characteristics high idle speed 5b		Starting fuel delivery idle switching point 6		Torque-control travel 5	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 142,0-145,0 (139,5-147,5)	1190-1200*	LDA 500	0 bar 98,0-101,0 (95,5-103,5)	100	150,0-170,0 (146,0-174,0)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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# D. Adjustment Test for Manifold Pressure Compensator

MAN 20,9 d 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 12 P..LS 839 +RQV..PA 670	0,70	0 0,28 0,18	12,3-12,4 10,5-10,6 11,8-11,9 10,9-11,1

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 q 3

1. Edition

En

PE 6 P 110 A 320 RS 3108  
Komb.-Nr. 0 401 846 781

RQV 325-1100 PA 232-1

supersedes

company: Volvo-BM

engine: EM/TD 100 G

3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 3,0-3,1 \\ (2,95-3,15) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,5+0,1	14,7-14,9	0,4(0,8)			2,5 $\pm$ 0,1 (2,2-2,9)
325	4,0-4,2	1,7-2,1	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 13	100	min.5,5	300	1,5-1,6
ca. 46	10,5	1140-1150					325	4,0-4,2	570	3,5-4,1
	4,0	1210-1240					340-400 = 2,0		830	5,4-5,6
	1350	0 - 1,0							1100	8,0

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 147,0-149,0 (144,0-152,0)	1140-1150 *	LDA 700	0 bar 100,0-102,0 (97,0-105,0)	100	170,0-200,0 =20,0-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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D11

D11

# D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 q 3 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PE 6 P..RS 3108 + RQV ..PA 232-1	0,90	0 0,53 0,37	11,5-11,6 9,1-9,2 10,9-11,0 9,6-9,8

Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BA0 31,8 b

1. Edition

En

PE 12 P 130 A 120 RS 3127 RQV 350-900 PA 618

1-12-9-4-5-8-11-2-3-10-7-6

0-45-60-105-120-165-180-225-240-285-300-345° ± 0,5° (±0,75°)

Values only apply to test nozzle-and-holder  
assembly 1 688 901 019 and fuel-injection test

tubing 1 680 750 067

supersedes

Baudouin

engine 12 P 15-2 AN-SR

Kom.-Nr. 0 401 830 708

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,8-2,9}{(2,75-2,95)}$  mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	12,2±0,1	30,9-31,2	0,6 (1,0)			
350	4,8-5,0	2,0-2,6	1,6 (1,4)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	940	15,2-17,8	-	-	-	ca. 30	100	min. 6,4	325	1,1-1,3
ca. 62	1,2	940-950					350	4,8-5,0	500	3,1-3,8
	4,0	1005-1035							750	5,0-6,4
	1150	0 - 1,0				350-450			900	8,0

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	309,0-312,0 (304,0-316,0)	940-950 *	-	-	-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.84

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCA 14,2 c

4. Edition

En

PE 8 P 120 A 920/4 LS 7002 RSV 350-1100 P 1/484  
1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je 45° ± 0,5° (±0,75°)

supersedes 10.83

company Saab-Scania

engine DS 14 40, 42

DSI 14 40, 41

Komb.-Nr. 0 402 678 800

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

See page 2 !

## A. Fuel Injection Pump Settings

from FD 141: 5,0 - 5,1 to FD 052: 4,4 - 4,5  
Port closing at prestroke (4,95-5,15) mm (from BDC) (4,35-4,55)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2±0,1	18,7 - 18,9	0,6(0,9)			3,3 ± 0,1
350	4,4-4,6	1,4 - 1,8	0,3(0,6)			(3,0 - 3,5) * *

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 30	350	4,0	-	-
	x	= 6,0					350	4,4-4,6		
							440-500	=2,0		
ca. 66	12,2	1090-1100								
2a	4,0	1170-1200								
	1300	0,3 - 1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to ) rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	4	cm <sup>3</sup> /1000 strokes 5	6	rev/min 7	cm <sup>3</sup> /1000 strokes 8	rev/min 9	Control rod travel mm 10
700	187,0-189,0 (184,0-192,0)	1140-1150*	1000	183,0-191,0 (181,0-193,0)	100	240-290,0 =20,0-21,0 mm RW	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.84

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## S U P P L E M E N T A R Y   I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on Aug. 19, 1983
- Start of fuel delivery-engine:    DS 14-18° before TDC; DSI 14-17° before TDC
- Firing sequence, engine        :    1-5-4-2-6-3-7-8

\*\* Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 - 3,1 mm.

①

# Test Specifications Fuel Injection Pumps ① and Governors

LPP 001/4 SCA 14,2 g

1. Edition

En

PE 8 P 120 A 920/4 LS 7002 RQV 275-1000 PA 547-3

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je 45°+0,5° (+0,75°)

Values only apply to test nozzle-and-holder  
assembly 1 688 901 019 and fuel-injection test  
tubing 1 680 750 015

supersedes

company Scania

engine DS 1406

LKW 142-Kran

Komb.-Nr. 0 402 648 810

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $5,0 - 5,1$   
(4,95-5,15) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2+0,1	18,7 - 18,9	0,6(0,9)			3,3 ± 0,1
275	4,4-4,6	1,0 - 1,4	0,3(0,6)			(3,0 - 3,5) * *

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1000	15,2-17,8	-	-	-	ca. 8	100	min.5,9	250	1,5-1,7
ca. 60	12,2	1040-1050					275	4,4-4,6	500	3,6-4,0
	4,0	1190-1220					320-380 = 2,0		750	5,2-5,5
	1250	0 - 1,0							1000	7,7

Torque control travel a =  mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 800	0,9 bar 187,0-189,0 (184,0-192,0)	1040-1050*	LDA 1000	0,9 bar 183,0-191,0 (181,0-193,0)	100	240,0-290,0 = 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 137,0-141,0 (135,0-143,0)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

D16

346

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## D. Adjustment Test for Manifold Pressure Compensator

SCA 14,2 g - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
PE 8 P..LS 7002 + RQV..PA 547-3	0,90			13,2 - 13,3
		0		11,3 - 11,4
		0,35		12,8 - 12,9
		0,23		11,9 - 12,1

### Notes

(1) when n = rev/min and gauge pressure = bar ( = maximum full-load control rod travel)

SCA 11,0 y 1

## S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 2.11. 1983
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-4-2-6-3-7-8

\*\* Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 - 3,1 mm.

# Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 120 A 720 RS 7004

RQ 900 PA 528-2

supersedes -

company Saab-Scania

engine DN 11

Komb.-Nr. 0 402 646 814

Values only apply to test nozzle-and-holder  
assembly 1 688 901 019 and fuel-injection test  
tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $5,0-5,1$   
(4,95-5,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	10,6+0,1	16,2 - 16,4	0,6(0,9)			3,3 <sup>+</sup> 0,1 (3,0-3,5) **

\*\* Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm.

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	9,6 4,0 1000	900-905 935-949 0-1,0	-	-	-	-	-	-

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

900-905 min<sup>1</sup>1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
850	162,0-164,0 (159,0-167,0)	-	-	-	100	240,0-290,0 = 20,0-21,0 mm RW
			High idle speed Dispersion: 4,0 (7,0)			

Checking values in brackets



# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 p  
3. Edition

En

FES 6 A 80 D 410 RS 2085  
Komb.-Nr. 0 400 876 211

RSV 350-1400 A 5 B 716 DL

supersedes 5.84  
company Daimler-Benz  
engine OM 352  
93 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25  
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1400	8,3-8,4	5,7-5,8	0,2(0,35)			
350	5,4-5,6	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	lose		**	1400	8,3-8,4
	x = 6,0						100	min.19,0	500	9,1-9,2
ca. 70	7,3	1440-1450					350	5,4-5,6	1000	8,5-8,8
2a	4,0	1495-1515					500-560	= 2,0		
	1650	0,7-1,7								

Set idle-speed auxiliary spring at 2 mm control-rod travel.

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	4	cm <sup>3</sup> /1000 strokes 5	6	cm <sup>3</sup> /1000 strokes 7	8	rev/min 9	Control rod travel mm 9
1400	56,5-57,5 (55,0-59,0)	1440-1450*	1000	54,0-56,0 (52,5-57,5)	100	78,0-88,0 (75,0-91,0)	-	-	-
			800	52,5-54,5 (51,0-56,0)					

Checking values in brackets

\* 1 mm less control rod travel than col 2

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10.84

D19

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 RAB 9,7 a 3

1. Edition

En

PES 6 A 95 D 410 RS 2108 U RQ 200/1100 AB 647 L  
Komb.-Nr. 0 400 846 247

supersedes  
company Raba  
engine -

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $1,7-1,8$   
(1,65-1,85) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,0+0,1	10,7-10,9	0,35 (0,6)			
200	5,9-6,1	0,9-1,6	0,35 (0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 4		rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		rev/min 11		Torque control Control rod travel mm 12	
600	15,4-16,4	600	15,9	10,0 4,0	1145-1160 1185-1215	200	6,0	100 200 345-385 = 2,0	min. 7,5 5,9-6,1	-	-	-	-	-	-

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At 1145-1160 min<sup>-1</sup>

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7	
1100	107,0-109,0 (105,0-111,0)	-	-	700 500	100,5-103,5 (98,0-106,0) 97,5-100,5 (95,0-103,0)	100 200	19,5-21,0 mm RW 6,0 mm RW		

Checking values in brackets

11.84

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Testoil-SO 4113

# Test Specifications Fuel Injection Pumps and Governors

1A

WPP 001/4 MB 8,7i

5. Edition

En

40

Testoil-ISO 4113

PE 6 A 90 D 410 RS 2124 RSV 700-1150 A 1 B 665 L  
Komb.-Nr. 0 400 676 117 A 1 C 665 L

supersedes 8,80  
company Daimler-Benz  
engine OM 360  
125 kW (170 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,10-2,30) mm (from BDC)  
2,15-2,25

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,6-10,7	8,8 - 8,9	0,3(0,45)			
700	5,6-5,8	1,8 - 2,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	900	0,3-1,0	-	-	-	ca.31	700	5,2	-	-
	ca.53	9,6 1160-1165 4,0 1184-1201 1250 0,3-1,7					700 690-750	5,1-5,3 = 2,0		
2a										

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to ) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop rev/min 8		4a Control rod travel mm 9	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes 7					
1150	87,5 - 88,5 (85,5 - 90,5)	1160-1165*	-	-	-	-	-	-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.84

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D21

D21

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 8,7 c 3

2. Edition

En

PE 6 A 90 D 410 RS 2124 X

RQ 300/1275 AB 658 DL

Komb.-Nr. 0 400 646 151

supersedes 8.82

company Daimler-Benz

engine OM 360

125 kW (170 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,15-2,25$   
(2,1 - 2,3) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Reference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	9,3-9,4	7,7 - 7,8	0,3(0,45)			
300	6,1-6,3	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10 rev/min 9		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4				Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12
700	15,6-16,4	700	16,0	8,3 4,0	1295-1310 1345-1375	300	5,0	100 300 350-390 = 2,0 475	min. 6,5 4,9-5,1 max. 1,0	1250 500 850 1040	9,3-9,4 10,1-10,2 9,8-10,0 9,4-9,7

Torque-control travel  
on flyweight assembly dimension a = 0,4 mmSpeed regulation: At 1295-1310 min<sup>-1</sup>1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes/mm 7
1250	77,0-78,0 (75,0-80,0)	450		500 800	69,0-72,0 (67,0-74,0) 77,0-80,0 (75,0-82,0)	100	15,3-21,0 mm RW

Checking values in brackets

11.84

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①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 i 4

1. Edition

En

PES 6 A 80 C 410 RS 2194 X  
D

RQV 300-1425 AB 615 D

supersedes

comp. Daimler-Benz

engine OM 352

66 kW (90 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25  
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,9-4,3	0,3			
200	6	1,2-2,0				
	9	1,8-2,6				

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 66	1425 1550 1650 1700 1790	16,0-19,4 8,2-13,4 1,4-8,0 0-5,2 0	-	-	-	ca. 10	200 400 480 600 770	6,0-7,4 3,5-5,2 2,7-3,8 1,4-2,8 0	250 640 1030 1425	0,9-1,1 3,3-3,7 6,0-6,2 8,7

Torque control travel a = 1,7 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑧		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	38,5-40,5 (39,5-41,5)	1505-1515*	1000 800 500	35,5-38,5 36,0-39,0 37,7-41,2	100	72,5-82,5	1425 600	0 1,6-1,8

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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Testoil-ISO 4113

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 i

3. Edition

En

PES 6 A 80 C 410 RS 2194 Y  
D

RQV 300-1475 AB 621 D

superseded 10.78

company Daimler-Benz

engine OM 352

81 kW (110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke		2, 15-2, 25 (2, 10-2, 30)		mm (from BDC)		
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm <sup>3</sup> /100 strokes	cm <sup>3</sup> /100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
1	2	3	4	2	3	6
1000	9	4,4 - 4,8	0,3			
	6	1,8 - 2,6				
200	9	2,4 - 3,4				

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1475	16,0-19,0	-	-	-	ca. 10	100	6,7-8,0	250	0,8-1,1
	1600	8,5-13,5					300	4,8-6,5	660	3,8-4,0
	1700	1,6-8,5					500	2,5-3,7	1070	5,7-5,9
	1800	0 - 3,0					600	1,3-2,7	1475	8,9
	1850	0					770	0		
						(3a)				

Torque control travel a = 1,2 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1450	45,5-47,5 (44,5-48,5)	1505-1515*	1000	45,5-48,5	100	72,5-82,5	1475	0	
			800	45,0-48,0			600	1,1-1,3	
			500	41,0-44,5					

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 i 1

1. Edition

En

PES 6 A 80 C 410 RS 2194 Y  
D

RQV 300-1475 AB 622 D

supersedes

company Daimler-Benz

engine OM 352

81 kW (110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,15-2,25}{(2,10-2,30)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,4-4,8	0,3			
	6	1,8-2,5				
200	9	2,4-3,4				

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 66	1475 1600 1700 1800 1850	16,0-19,0 8,5-13,5 1,6-8,5 0 - 3,0 0	-	-	-	ca. 10	100 300 500 600 770	6,7-8,0 4,8-6,5 2,5-3,7 1,3-2,7 0	250 660 1070 1475	0,8-1,1 3,8-4,0 5,7-5,9 8,9

Torque control travel a = 1,2 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a		Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel Control rod travel mm ⑤	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9	
1450	45,5-47,5 (44,5-48,5)	1505-1515*	1000 800 500	45,5-48,5 45,0-48,0 41,0-44,5	100	72,5-82,5	1475 600	0 1,1-1,3	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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E1

F4

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 i 2

1. Edition

En

PES 6 A 80 C 410 RS 2194 Z  
D

RQV 300-1475 AB 626 D

supersedes

company Daimler-Benz

engine OM 352

74 kW (100 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2, 15-2, 25  
(2, 10 2, 30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,4-4,8	0,3			
	6	1,8-2,6				
200	9	2,4-3,4				

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed				Intermediate rated speed				Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	1a 2a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm	1
1	2	3		4	5	6		7	8	9		10	11	
ca. 66	1475 1600 1700 1800 1850	16,0-19,0 8,5-13,5 1,6-8,5 0 - 3,0 0		-	-	-		ca. 10	100 300 500 600 770	6,7-8,0 4,8-6,5 2,5-3,7 1,3-2,7 0	3a	250 660 1070 1475	0,8-1,1 3,8-4,0 5,7-5,9 8,9	

Torque control travel a = 1,2 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min ④a	rev/min	cm <sup>3</sup> /1000 strokes ⑤b	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1450	41,0-43,0 (40,0-44,0)	1505-1515 *	1000 800 500	38,5-41,5 39,5-42,5 36,0-39,5	100	72,5-82,5	1475 600	0 1,1-1,3

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84



# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 OMB 4,4 c 1

2. Edition

En

PES 4 A 90 D 410 RS 2195

RQ 250/1200 AB 849 L

superseded 6.83

company: OM Brescia

Komb.-Nr. 0 400 844 057

engine: CO 3 D

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $2,15-2,25$   
 $(2,10-2,30)$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,9+0,1	8,0 - 8,1	0,3(0,45)			
250	7,4-7,6	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in  .

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min 1	mm 2	rev/min 3	mm 4	mm 5	rev/min 6	rev/min 7	mm 8	rev/min 9	mm 10	rev/min 11	mm 12
700	15,6-16,3	700	16,0	10,0	1245-1260	250	7,5	100	min.8,9	1200	10,9-11,0
	VH=max. 46°			4,0	1335-1365			250	7,4-7,6	700	10,9-11,1
								470-510= 2,0			

Torque-control travel  
on flyweight assembly dimension a =   mmSpeed regulation: At  $1245-1260 \text{ min}^{-1}$  1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	mm 3a	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
1200	79,5-80,5 (77,5-82,5)	800		800	74,5-77,5 (72,5-79,5)	-	-

Checking values in brackets

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 OMB 4,4 c 2

2. Edition

En

PES 4 A 90 D 410 RS 2195 Z RQ 250/1200 AB 849 L

Komb.-Nr. 0 400 844 063

supersedes 6.84

company: OM-Brescia

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25  
(2,10-2,30)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,8+0,1	6,8-6,9	0,3(0,45)			
250	8,4-8,6	1,0-1,6	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	15,6-16,4	650	16,0	9,8 4,0	1245-1260 13 5-13 5	250	6,0	100 250 425-465=2,0	min.7,5 5,9-6,1	-	-

Torque-control travel  
on flyweight assembly dimension a = - mmSpeed regulation: At 1245-1260 min<sup>-1</sup>1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 60°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
1200	68,0-69,0 (66,0-71,0)	-	800	58,0-62,0 (56,0-64,0)	100	16,3-17,0 mm RW

Checking values in brackets

11.84

E4

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②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 8,3 k 4

1. Edition

En

PE 6 A 95 D 410 RS 2525/X RQ 225/1200 AB 1007 L

Komb.-Nr. 0 400 646 252/X

 superseded by  
 company DAF  
 engine DHB 825

Specifications apply to test tubing 1 680 750 015

 Port closing difference between control-rod  
 travel 9 and max. 0,7 - 0,8 mm.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test oil: ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDBei RW = 9,0-12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	7,5-7,9	0,3(0,6)			
1000	9	3,2-3,9	-			
200	9	1,3-2,1	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications rev/min 6		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 12	
650	19,5-20,8	650	20	1200	19,7-20,0	250	8,6	100	9,8-11,7	-	-
VH =	max. 49°			1280	6,5-14,0			250	7,3-9,9		
				1310	0 -10,6			350	4,2-7,0		
				1390	max. 1,0						

 Torque-control travel on flyweight assembly dimension a =  mm Speed regulation: At 1280 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm <sup>3</sup> /-1000 strokes 2				cm <sup>3</sup> /-1000 strokes 5		cm <sup>3</sup> /1000 strokes/mm 7	
LDA 1000	0,7 bar 92,5-94,5 (89,0-98,0)	600		LDA 600	0 bar 79,0-82,0 (74,0-87,0)	100	120-130 = 19,5-21,0 mm RW

Checking values in brackets

10.84

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E5

E5

# D. Adjustment Test for Manifold Pressure Compensator

DAF 8,3 k 4

- 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PE6A..RS2525/X + RQ..AB1007L	0,70	0,24 0	Full-load control-rod travel Full-load control rod travel - 0,1 mm Control-rod travel aspiration

## Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ② and Governors

PE 6 A 95 D 410 RS 2525/Y RQ 225/1200 AB 1007 L

Komb.-Nr. 0 400 646 252/Y

Specifications apply to test tubing 1 680 750 015

supersedes-

company DAF

engine DU 825

Port closing difference between control-rod  
travel 9 and max. 0,7 - 0,8 mm.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

(1,95-2,15)

mm (from 80° bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	7,5-7,9	0,3(0,6)			
1000	9	3,2-3,9	-			
200	9	1,3-2,1	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications Control rod travel mm 9	rev/min 10	rev/min 11	Control rod travel mm 12
650	19,2-20,8	650	20,0	1200	19,7-20,0	250	8,6	100	9,8-11,7	-	-
VH =	max. 49°			1280	6,5-14,0			250	7,3-9,9		
				1310	0,0-10,6			350	4,2-7,0		
				1390	max. 1,0						

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1280 min<sup>-1</sup>1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
LDA 1000	0,7 bar 102-104 (100-106)	600	LDA 600	0 bar 79-82 (76,5-84,5)	100	120-130 = 19,5-21,0 mm

Checking values in brackets

10.84

# D. Adjustment Test for Manifold Pressure Compensator

DAF 8,3 ± 16 - 2 -

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel: diminution difference mm (1)
PE6A..RS2525/Y + RQ..AB1007 L	0,70	0,24 0	Full-load control-rod travel Full-load control rod travel - 0,1 mm Control-rod travel aspiration

## Notes

(1) when n =

rev/min and  
gauge pressure =

bar ( = maximum full-load control rod travel)

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 8,3 k 5

1. Edition

En

PE 6 A 95 D 410 RS 2525/Z RQ 225/1200 AB 1007 L

Komb.-Nr. 0 400 646 252/Z

supersedes

company DAF  
engine DHR 825 E

Specifications apply to test tubing 1 680 750 015

Port closing difference between control-rod  
travel 9 and max. 0,7 - 0,8 mm.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$  mm (from BD) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,8+0,2	11,2-11,4	0,3(0,6)			
225	5,7-5,9	0,7-1,1	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	19,2-20,8	650	20	11,9 4,0 1390	1230-1245 1315-1345 max. 1,0	225	5,8	225	5,7-5,9 340-380 = 2,0 100 min.7,2	-	-
VH =	max. 46°										

Torque-control travel on flyweight assembly dimension a =  mm Speed regulation: At 1230-1245 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery idle speed ⑥	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
LDA 1000	0,7 bar 111,5-113,5 (109,5-115,5)	600	LDA 600	0 bar 84,5-87,5 (82,0-90,0)	100	120-130 = 19,5-21,0 mm RW

Checking values in brackets

10.84

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Test Bench 4113

E9

E9

# D. Adjustment Test for Manifold Pressure Compensator

DAF 8,3 k 5

- 2 -

Test at n = 1000 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel <sup>diminution</sup> difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6A..RS2525/Z + RQ..AB1007/L	0,70	0,30 0	12,8-13,0 12,2-12,3 11,5-11,6

Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 8,3 K3

1. Edition

En

PE6A95 D 410 RS 2525/Z

RSV 250-1200 A5B 2013 D

supersedes  
company DAF  
engine DHR 825 E

Komb.-Nr. 0 400 676 152/Z

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) bei RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,8+0,2	11,2-11,4	0,3 (0,6)			
250	6,0-6,2	0,7-1,1	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 21	250	5,6	400	13,1-13,2
	X =						250	6,0-6,2	300	13,3-13,8
ca. 55	11,9	1230-1240					595-655	2,0		
2a	4,0	1330-1360								
	1490	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	3		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
LDA	0,7 bar	1230-1240*		LDA	0 bar				
1000	111,5-113,5			600	81,5-87,5	100	120,0-130,0	250	6,1
	(109,5-115,5)				(82,0-89,0)		= RW 19,5-21,0 mm		

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.84

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Test oil ISO 4113

E11

E11

# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1000 rev/min decreasing pressure - in bar gauge pressure increasing

DAF 8,3 K 3 - 2 -

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PE6A..RS 2525/Z + RSV..A5B 2013 D	0,70	0,30 0	12,8 - 13,0 12,3 - 12,4 11,5 - 11,6

## Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)



# Test Specifications

## Fuel Injection Pumps and Governors

WPP 001/4 DAF 6,2 i 1

4. Edition

En

PF 6 A 90 D 320 RS 2547 RSV 250-1200 A5B 779 R

Komb.-Nr. 0 400 676 141

0 400 676 153

supersedes 3.83

company DAF

engine DT 615

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

 Port closing at prestroke <sup>2,2-2,3</sup>  
 (2,15-2,35) mm (from BDC) RW 9

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm <sup>3</sup> /100 strokes	cm <sup>3</sup> /100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
1	2	3	4	2	3	6
1000	10,8+0,1	7,1 - 7,2	0,3(0,45)			
250	5,9-6,1	0,8 - 1,2	0,2(0,4)			

Port closing difference between control-rod travel 9 and max. = 2,5° - 3,5° camshaft

Adjust the fuel delivery from each outlet according to the values in .
**Testoil-ISO 4113**

### B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 22	250	5,5	1000	10,8+0,1
	x	= 3,25					250	5,9-6,1	300	11,2+0,5
							330-390	= 2,0	400	11,0+0,2
⑤ ca. 54	9,8	1240-1250								
	4,0	1280-1310								
	1450	0,3 - 1,7								

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
LDA 1000	0,7 bar 71,5 - 72,5 (69,5 - 74,5)	1240-1250*	LDA 600	0 bar 51,5 - 53,5 (49,5 - 55,5)	100	135,0-145,0 / 19,5 - 21,0 mm RW	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.84

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1000 rev/min decreasing pressure - in bar gauge pressure  
increasing  
XXXXXXX

DAF 6,2 i 1 -2-

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel: diminution difference mm (1)
.. RS 2547 + RSV .. A5B 779 R	0,7 bar	0,25 0,21 0	10,8 - 10,9 10,6 - 10,7 10,1 - 10,4 9,8 - 10,0

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 i 4

1. Edition

En

PE 6 A 90 D 320 RS 2547/y

RSV 250-1200 A 5 B 779 R

supersedes

company

DAF

engine

DT 615

Komb.-Nr. 0 400 676 153/y

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\overset{2,2-2,3}{(2,15-2,35)}$  mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1000	10,8+0,1	7,1-7,3	0,3 (0,5)			
250	5,9-6,1	0,9-1,3	0,2(0,45)			
Port closing difference between control-rod travel 9 and max. = 0,6 - 0,7 mm						

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 22	250	5,5	400	11,0-11,1
	X =						250	5,9-6,1	300	11,2-11,7
							330-390	2,0		
ca. 54	9,8	1240-1250								
2a	4,0	1280-1310								
	1490	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to )							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1000	0,7 bar 71,0-73,0 (69,5-75,5)	1240-1250*	LDA 600	0 bar 51,5-53,5 (49,0-56,0)	100	135,0-210,0 RW=19,5-21,0 mm	250	6,0	

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.84

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Test ISO 1113

## D. Adjustment Test for Manifold Pressure Compensator

DAF 6,2 i 4 - 2 -

Test at n = 1000 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE6A..RS 2547/y + RSV...A5B 779 R	0,70	0,25  0,21  0	10,8 - 10,9 10,6 - 10,7  10,1 - 10,4 9,8 - 10,0

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 6,2 i 5

1. Edition

En

PE 6 A 90 D 320 RS 2547/Z RQ 250/1200 AB 1022 R

Komb.-Nr. 0 400 646 256/Z

supersedes

company DAF

engine DT 615

Specifications apply to test tubing 1 680 750 015

Port closing difference between control-rod  
travel 9 and max. = 0,6 - 0,7 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

2,2-2,3  
(2,15-2,35)

mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,8+0,1	7,1-7,3	0,3(0,5)			
600	9,8+ ,2	5,2-5,4	0,4(0,55)			
250	6,9+0,2	1,2-1,6	0,2(0,45)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

## B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	19,2-20,8	650	20,0	9,8 4,0 1500	1245-1265 1340-1370 max. 1,0	250	8,5	100	min. 10,0 250 8,4-8,6 425-465=2,0	-	-
VH =	max. 46°										

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1245-1265 min

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
LDA 1000	0,7 bar 71-73 (69,5-74,5)	600	LDA 600	0 bar 51,5-53,5 (49,0-56,0)	100	135-145 = 19,5-21,0 mm RW

Checking values in brackets

10.84

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E18

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# D. Adjustment Test for Manifold Pressure Compensator

DAF 6,2 i 5

- 2 -

Test at n = 1000 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm (1)
PE6A..RS2547/Z + RQ..AB 1022 R	0,70	0,20 0,12 0	10,8-10,9 10,6-10,7 9,9-10,1 9,8-10,0

## Notes

(1) when n =

rev/min and  
gauge pressure =

bar ( = maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 6,2 i

8. Edition

En

**Testoil-ISO 4113**

PE 6 A 90 D 320 RS 2547 RQ 250/1200 AB 1022 R

Komb.-Nr. 0 400 646 256

supersede 2.83

company DAF

engine DT 615

113 kW (153 PS)

Specifications apply to test tubing 1 680 750 015

Port closing difference between control-rod travel 9 and max. = 2,5° - 3,5° camshaft

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,20-2,30</sup> (2,15-2,35) mm (from BD <sup>8,5</sup> 8,5 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,8+0,1	7,1 - 7,3	0,3(0,45)			
250	6,9-7,1	1,1 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
650	19,6-20,4	650	20,0	9,8	1245-1265	250	8,5	100 min. 10,0 250 8,4-8,6 425-465=2,0 550 max. 1,0		-	-
VH = max. 46°				4,0 1500	1340-1370 0-1,0						

Torque-control travel

on flyweight assembly dimension a = mm

Speed regulation: At 1245-1265 min<sup>-1</sup>

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) rev/min 1 cm <sup>3</sup> /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm <sup>3</sup> /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm <sup>3</sup> /1000 strokes/mm 7	
LDA 1000	9,7 bar 71,5 - 72,5 (69,5 - 74,5)			LDA 600	0 bar 51,5 - 53,5 (49,0 - 56,0)	100	135,0-145,0 (132,0-148,0) = 19,5-21,0 mm RV
						250	7 mm RV

Checking values in brackets

## D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 1000 rev/min decreasing pressure - in bar gauge pressure  
increasing

DAF 6,2 i

Pump/governor	Setting Gauge pressure : bar	Measurement Gauge pressure - bar	Control rod travel diminution difference mm (1)
..RS 2547 + RQ..AB 1022 R	0,70	0,20 0,12 0	10,8 - 10,9 10,6 - 10,7 9,9 - 10,1 9,8 - 10,0

### Notes

(1) when n =

rev/min and  
gauge pressure -

bar ( - maximum full-load control rod travel)

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 OMB 7,4 b 3

1. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2566  
Komb.-Nr. 0 400 846 434

RQ 300/1400 AB1061DL

supersedes 5.79

company OM Brescia  
engine 8360.04.300

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,15-2,25}{(2,10-2,30)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	10,9-11	7,2 - 7,4	0,3(0,45)			
300	7,9-8,1	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	9,9 4,0 1700	1445-1460 1555-1585 0 - 1,0	300	6,0	100 300 445-485 600	min.7,5 5,9-6,1 =2,0 0 - 1	1400 790 615 580	10,9-11,0 11,2-11,5 12,3-12,5 12,4-12,5

Torque-control travel on flyweight assembly dimension a = 0,7 mm

Speed regulation: At 1445-1460 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
1400	72,5 - 73,5 (70,5 - 75,5)	500	500	60,5 - 63,5 (58,5 - 65,5)	100	115,0-125,0 (112,0-128,0) = 16,3-16,7 mm RW

Checking values in brackets

11.84

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E22

E22

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 u 6

2. Edition

En

PES 6 A 90 D 410 RS 2569 RQV 300-1400 AB 1111-2L  
Komb.-Nr. 0 400 846 492

superseded by 82  
comparable Daimler-Benz  
engine OM 352  
88 kW (120 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,25-2,35$   
( $2,20-2,40$ ) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	9,8-9,9	5,5 - 5,6	0,3(0,45)			
300	8,2-8,4	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 24	100	min. 9,8	250	0,7-0,9
ca. 64	8,8 4,0 1630	1440-1450 1530-1560 0 - 1,0					300	8,2-8,4	630	3,7-3,8
							550-610 = 2,0		1020	5,3-5,4
									1400	7,7

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a		Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel Control rod travel mm ⑤	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9	
1400	54,5-55,5 (52,5-57,5)	1440-1450*	500	46,5-49,5 (44,5-51,5)	100	73,0-83,0 (70,0-86,0) = 14,8-15,2 mm RW	1400 500 630 1000	9,8+0,1 11,0+0,1 10,8+0,2 10,2+0,3	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.84

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Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps **(1A)** and Governors

**40**

WPP 001/4 MB 5,7w2

2. Edition

En

**Testoil-ISO 4113**

PES 6 A 90 D 410 RS 2569  
Komb.-Nr. 0 400 876 289

RSV 350 - 1400 A3 B 1136 L  
A0 C 1136 L

superseded **11.80**  
company **Daimler-Benz**  
engine **OM 352**  
**81 kW (110 PS)**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,20-2,40)  
2,25-2,35 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1400	9,6-9,7	4,8 - 4,9	0,2(0,25)			
350	7,9-8,1	0,7 - 1,3	0,2(0,25)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

<b>(1)</b> Upper rated speed rev/min			Intermediate rated speed			<b>(4)</b> Lower rated speed			<b>(3)</b> Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 18	350	7,5	1400 500	9,6-9,7 10,3-10,4
ca. 62 <b>(2a)</b>	1440-1450 = 8,6 1470-1500 = 4,0 1650 = 0,3-1,7						350 590 - 650 = 2,0	7,9-8,1		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

<b>(2b)</b> Full-load stop		<b>(6)</b> Rotational speed initial		<b>(3a)</b> Fuel delivery characteristics		Starting fuel delivery Idle <b>(5)</b>		<b>(4a)</b> Idle stop	
Test oil temp 40°C (104°F)		Note changed to )							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1400	48,5 - 49,5 (46,5 - 51,5)	1440-1450*	500	39,0 - 42,0 (37,0 - 44,0)	100	80,0-90,0 (77,0-93,0)	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

**11.84**

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**E24**

E24

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7w3

4. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2569 RSV 350 - 1275 A0 B 1138 L  
Komb.-Nr. 0 400 876 291 AOC 1138 L

superseded 8.82  
company Daimler-Benz  
engine OM 352  
62 kW (84 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

(2,20-2,40)

Port closing at prestroke 2,25-2,35 mm (from BP)  $\Delta P_{FW} = 9,0-12,0$  mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	8,4-8,5	4,0 - 4,1	0,3(0,25)			
350	7,7-7,9	0,8 - 1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 35	350	7,3	1250	8,4-8,5
	x = 6,0						100	min. 19,0	500	9,7-9,8
							350	7,7-7,9	785	9,0-9,2
							670	730-2,0		
ca. 72	1290-1300 = 7,4									
2a	1405-1435 = 4,0									
	1545 = 0,3 - 1,7									

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3		4	5	6	7	8	9
1250	40,5 - 41,5 (38,5 - 43,5)	1290-1300*		750	39,5 - 41,5 (37,5 - 43,5)	100	80,0-90,0 (77,0-93,0)	-	-
				600	37,0 - 39,0 (35,0 - 41,0)		= 15,8- 16,2 mm $\Delta P_{FW}$		

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.84

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F1

FA

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7w8

3. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2569 RSV 350-1300A0B 1140L  
Komb.-Nr. 0 400 876 292 AOC 1140 L

supersedes 8.82  
company Daimler Benz  
engine OM 352  
81 kW (110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,20-2,40) mm (from BDC)  
2,25-2,35

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1300	10,1+0,1	5,3 - 5,4	0,3(0,45)			
350	8,6-8,8	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

\* Set idle-speed auxiliary spring at 2 mm control-rod travel.

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0	-	-	-	ca.20	350	2,0*	1300	10,1-10,2
ca.61	1340-1350=9,1 1435-1465=4,0 1550=0,3-1,7						350 630-690 = 2,0	8,6-8,8	1000 500	10,5-10,8 11,2-11,3

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min				Idle			
rev/min	cm <sup>3</sup> /1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1300	53,0 - 54,0 (51,0 - 56,0)	1340-1350*	500	45,0 - 47,0 (43,0 - 49,0)	100	78,0-88,0 (75,0-91,0)	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col 2

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F2

F2



# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 w 11

1. Edition

En

PES 6 A 90 D 410 RS 2569

RSV 350-1200 A 0 B 1140-1 L

Komb.-Nr. 0 400 876 325

supersedes

company

engine

Daimler-Benz

OM 352

70 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,25-2,35$  mm (from BDC)  
(2,20-2,40)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1200	9,3-9,4	4,3-4,4	0,3 (0,5)			
350	8,4-8,6	1,0-1,6	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Control lever deflection in degrees			Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min							rev/min	Control rod travel mm		rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11			
loose	800	0,3-1,0	-	-	-	lose	350	8,5	1200	9,3-9,4			
	x = 3,75						100	min. 19,5	850	10,6-10,7			
ca. 58	8,3	1230-1240					350	8,4-8,6	950	10,3-10,5			
2a	4,0	1330-1360							1100	9,5-9,7			
	1480	0,3-1,7											

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min				Idle			
rev/min	cm <sup>3</sup> /1000 strokes			rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1200	43,0-44,0 (41,0-46,0)	1230-1240*	850	49,0-52,0 (46,5-54,5)	100	78,0-88,0 (75,0-91,0) =16,0-16,4 mm RW	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col 2

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11.84

F3

F3

①

# Test Specifications

## Fuel Injection Pumps ①

### and Governors

WPP 001/4 MB 3,8 n 11

1. Edition

En

PES 4 A 90 D 410 RS 2570  
Komb.-Nr. 0 400 844 086

RQV 300-1400 AB 1065-7 L

supersedes

company Daimler-Benz

engine OM 314

63 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke  $2,25-2,35$  mm (from BDC)  
(2,20-2,40)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	11,0+0,1	6,4-6,5	0,3(0,5)			
300	5,9-6,1	1,0-1,4	0,2			

Adjust the fuel delivery from each outlet according to the values in 

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1420	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	300	0,8-1,4
ca. 59	10,0	1440-1450					300	5,9-6,1	800	4,3-4,5
	4,0	1540-1570							1445	8,1
	1700	0-1,0				410-480				
						③a				

Torque control travel a = 0,80 mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8
1400	64,0-65,0 (62,0-67,0)	1440-1450*	900	64,0-66,0 (61,5-68,5)	1100	78,0-88,0 (75,0-91,0)	1400
							900
							1150
							11,0+0,1
							11,8+0,1
							11,4+0,2

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

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F4

F4

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 LIE 5,6 b

1. Edition

En

PES 4 A 100 D 410 RS 2686 RQV 400-1000 AB 1203 L

Komb.-Nr. 0 400 844 085

supersedes

company: Liebherr

engine: D 904 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $\frac{2,7-2,8}{(2,65-2,85)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	11,4+0,1	11,9-12,1	0,35(0,6)			
400	5,3-5,5	1,0-1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1070	15,2-17,8	-	-	-	ca. 11	100 400	min.6,9 5,4-5,6	375 600 1000 150	1,0-1,1 3,7-4,0 7,5-7,6 9,9
ca. 62	10,4 4,0	1040-1050 1105-1135				420-530				

Torque control travel a = 1,2 min

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
LDA 1000	0,7 bar 119,0-121,0 (117,0-123,0)	1040-1050*	LDA 700	0,7 bar 128,5-131,5 (126,0-134,0)	100	125,0-135,0 (122,0-138,0) = 14,7-15,3 mm RW	1000	11,4+0,1	
LDA 900	0,7 bar 125,5-128,5 (123,0-131,0)		LDA 500	0 bar 87,5-90,5 (85,5-92,5)			500	12,6+0,1	
							900	11,8+0,3	
							850	12,3+0,2	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

LIE 5,6 b

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 4 A .. RS 2686 +RQV .. AB 1203 L	0,70	0 0,40 0,33	12,6-12,7 10,2-10,3 11,8-11,9 10,6-10,8

## Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 9,6 b

8. Edition

En

PE 6 P 100 A 320 LS 818 RSV 350-1250 P0/810  
Komb.-Nr. 0 401 876 183 ..POA810

1- 6- 3 - 5 - 2 - 4  
0-75-120-195-240-315°  $\pm 0,5^\circ$  ( $\pm 0,75^\circ$ )

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

superseded 9.84  
company Daimler-Benz  
engine OM 401  
141 kW (192 PS) (1)  
129 kW (175 PS) (2)

## A. Fuel Injection Pump Settings

Port closing at prestroke 3,4-3,5  
(3,35-3,55) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1230	10,3+0,1	10,2-10,4	0,3(0,6)			
350	7,2-7,4	1,4-2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 34	350	7,3	-	-
ca. 62	9,3	1280-1290					350	7,2-7,4		
2a	4,4	1360-1380					500-560	2,0		
	1400	0,3-1,7						**		

The numbers denote the sequence of the tests Set idle-speed auxiliary spring at 2 mm control-rod travel.

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min				Idle			
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	4	5	6	rev/min 7	cm <sup>3</sup> /1000 strokes 8	rev/min 9	Control rod travel mm 10
1230 (1)	102,0-104,0 (100,0-106,0)	1280-1290*	-	-		100	140,0-160,0 (136,0-164,0)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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11.84

F7

F7

Testoil 30 413

## B. Governor Settings

MB 9,6 b

- 2 -

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 63	1250 1350 1450	14,0 8,7 2,8	without auxiliary spring			ca. 31	350	5,9	-	-
ca. 60	1250 1360 1430	ca. 10,8 ca. 4,4 0,3-1,0					100 350 450 500	19-21 5,6-6,2 0,9-3,1 0-1,0		
⑤			with auxiliary spring							

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						
rev/min	cm <sup>3</sup> /1000 strokes	3	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2		4	5	6	7	8	9
1230 (2)	93,0-95,0 (91,0-97,0)	1280-1290*	-	-	100	110,0-130,0	-	-
			⑥a					

Checking values in brackets

\* 1 mm less control rod travel than col 2

**Testoil-ISO 4113**

## B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
⑤										

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						
rev/min	cm <sup>3</sup> /1000 strokes	3	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2		4	5	6	7	8	9

Checking values in brackets

\* 1 mm less control rod travel than col 2

F8

F8

En

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 10,6a

4. Edition

En

Testoil-ISO 4113

PE 6 P 100 A 320 LS 841  
Komb.-Nr. 0 401 876 243

RSV 650-1150 P 1/820 R  
P 1A820

supersedes 7.83

company Daimler-Benz

engine OM 401

150 kW (204 PS)

6 - 3 - 5 - 2 - 4 - 1  
0 -45 -120-165-240-285°  $\pm 0,5^\circ$  ( $\pm 0,75^\circ$ )

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

(3,15-3,25)

Port closing at prestroke 3,20-3,30

mm (from BDC) Zyl. 6; RW=9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1130	12,7 $\pm$ 0,1	11,9 - 12,1	0,3(0,6)			
650	6,1-6,3	0,8 - 1,3	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

\* Set idle-speed auxiliary spring at 2 mm control-rod travel.

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control lever deflection in degrees 7 rev/min 8			3 Torque control Control rod travel mm 10 11	
	Control rod travel mm 2	Control rod travel mm rev/min 3					Control rod travel mm 9			
loose	800	0,3-1,0 x = 4,0				ca. 32	650	6,2 **	1130	12,7-12,8
							660-715	= 2,0	600	12,7-12,9
ca. 58		1160-1170 = 11,7 1195-1210 = 5,1 1350 = 0,3 - 1,4								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to ) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop Control rod travel mm 8 9	
	cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes 7		
1130	119,0 - 121,0 (117,0 - 123,0)	1160-1170*	-	-	-	100	110,0-130,0 (106,0-134,0)	650	6,2

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.84

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②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 20,9 h 3

1. Edition

En

PL 12 P 120 A 520 LS 843-1 RQ 750 PA 663 L

supersedes -

company: MAN

engine D 2542 MLE  
320 kW

Komb.-Nr. 0 401 840 082

1- 5- 9- 8- 3- 4- 11- 10- 2- 6- 7- 12  
0-15-60-75-120-135-180-195-240-255-300-315°  $\pm 0,5^\circ$  ( $\pm 0,75^\circ$ )

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,0 - 3,1$  mm (from BDZyl. 12)  
(2,95-3,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,3+0,1	17,6-18,0	0,5(0,9)			
250	3,9-4,1	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10 rev/min 9		Torque control Control rod travel mm 12 rev/min 11	
-	-	-	-	9,3 4,0 900	750-755 776-789 0-1,0	-	-	-	-	-	-

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At 750-755 min<sup>-1</sup>1 mm less control  
rod travel

## C. Settings for Fuel injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes/mm
1	2	3	4	5	6	7
700	176,0-180,0 (173,0-183,0)	-	-	-	-	-

Checking values in brackets

10.84

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Testoil-ISO 4113

F10

FAO



①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 17,4 a 3

2. Edition

En

PE 10 P 110 A 520/5 LS 846  
Komb.-Nr. 0 401 849 180

RQV 250-1150 PA 673

supersedes 12.83

company MAN

engine D 2540 MT  
323 kW

1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4

0-27-72-99-144-171-216-243-288-315° ± 0,50° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,0-3,1}{(2,95-3,15)}$  mm (from BDC) 7yl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,9+0,1	14,0-14,2	0,4(0,8)			
250	7,2-7,4	1,1-1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1170	15,2-17,8	-	-	-	ca. 12	100	min. 8,8	350	2,0-2,5
ca. 65	10,9 4,0 1450	1190-1200 1335-1365 0-1,0					250 405-465=2,0	7,2-7,4	850 1150	6,5-6,7 8,4

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,9 bar 140,0-142,0 (137,0-145,0)	1190-1200*	LDA 750	0,9 bar 131,0-135,0 (128,0-138,0)	100	145,0-175,0 (141,0-179,0)	-	-
			LDA 500	0 bar 115,0-118,0 (112,0-121,0)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.84

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Testoil-ISO 4113

# D. Adjustment Test for Manifold Pressure Compensator

MAN 17,4 a 3

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 10 P..LS 846 + RQV..PA 673	0,90	0 0,38 0,33	11,9 - 12,0 11,2 - 11,3 11,7 - 11,8 11,3 - 11,5

## Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 20,9 q 1

2. Edition

En

PE 12 P 110 A 520/4 LS 848 RQV 250-1200 PA 668-4  
Komb.-Nr. 0 401 840 094

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12  
0-15-60-75-120-135-180-195-240-255-300-315°  $\pm 0,5^\circ (\pm 0,75^\circ)$

supersedes 12.83  
company: MAN  
engine: D 2842 ME  
338 kW  
Schiff

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,0-3,1}{(2,95-3,15)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	11,2+0,1	12,4 - 12,7	0,4 (0,75)			
250	6,5-6,7	1,0 - 1,5	0,45 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1330	15,2-17,8	-	-	-	ca. 11	100 250	min. 8,1 6,5-6,7	350 950 1200	1,9-2,3 5,6-5,8 7,4
ca. 62	10,2 4,0 1500	1240-1250 1350-1380 0-1,0				425-550 (3a)				

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational speed limitation intermediate speed 2b 4a	Fuel delivery characteristics high idle speed 5a 5b		Starting fuel delivery idle switching point 6		Torque-control travel 5 Control rod travel mm	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	mm 9
1200	124,0-127,0 (121,5-129,5)	1240-1250*	-	-	100 250	150,0-170,0 (146,0-174,0) 10,0-15,0 (7,5-17,5)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.84

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**Testoil-ISO 4113**
**F13**

F43

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 17,4 b 5

2. Edition

En

PE 10 P 120 A 520/S LS 850 RQV 250-1150 PA 668-6

1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4

0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

superdies 83

compMAN

engine 2540 MLE 405 kW

Komb.-Nr. 0401849177

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 mm (from BDC) Zyl. 10  
(2,95-3,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,2+0,1	18,6-18,8	0,5 (0,9)			
250	6,2-6,4	1,2-1,8	0,8 (1,2)			
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067						

Adjust the fuel delivery from each outlet according to the values in 

Testoil-ISO 4113

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1230	15,2-17,8	-	-	-	ca. 11	100	min. 7,8	350	2,0-2,5
ca. 59	10,2 4,0 1400	1190-1200 1260-1290 0 - 1,0					250	6,2-6,4	750	5,2-5,6
							380-440	= 2,0	1150	7,5-7,9
									1250	8,8

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	186,0-188,0 (183,0-191,0)	1190-1200 *	-	-	100	205,0-225,0 (201,0-229,0)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.84

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②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SAU 12,0 d 1

2. Edition

En

PES 6 P 120 A 420 RS 3049-1 RQ 300/1100 PA 687

1 - 4 - 2 - 6 - 3 - 5 je 60° ± 0,5° (± 0,75°)

Values only apply to test nozzle-and-holder  
assembly 1 688 901 019 and fuel-injection test  
tubing 1 680 750 067

supersedes 3,84

company Saurer

engine D4KTM

235 kW

Komb.-Nr. 0 402 046 744

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,8-2,9$   
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,4+0,1	20,5-20,7	0,5(0,9)			
300	5,0-5,2	2,3-2,9	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

Test oil: ISO 4713

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10 rev/min 9		Torque control rev/min 11		Control rod travel mm 12
750	13,1-13,9	750	13,5	10,3 4,0 1350	1145-1160 1200-1230 0-1,0	300	5,1	100 300 450-480 = 2,0	min.6,5 5,0-5,2	700 900 1000 1100		12,4-12,5 12,1-12,4 11,8-12,0 11,4-11,8

Torque-control travel  
on flyweight assembly dimension a = 0,45 mmSpeed regulation: At 1145-1160 min<sup>-1</sup>1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7
LDA 700	0,9 bar 205,0-207,0 (202,0-210,0)		-	LDA 400	0 bar 88,0-92,0 (85,0-95,0)	100		210,0-240,0

Checking values in brackets

11.84

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F15

EAS

# D. Adjustment Test for Manifold Pressure Compensator

Test at n : 500 rev/min decreasing pressure - in bar gauge pressure increasing

SAU 12,0 d 1 - 2 -

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..RS 3049-1 + RQ..PA 687	0,90	0 0,60 0,35	12,4-12,5 8,6-8,7 11,8-11,9 9,5-9,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SAU 12,0 d 2

1. Edition

En

PES 6 P 120 A 420 RS 3049-1 X RQ 300/1100 PA 687  
1-4-2-6-3-5 je  $60^\circ \pm 0,5^\circ (\pm 0,75^\circ)$   
Values only apply to test nozzle-and-holder  
assembly 1 688 901 019 and fuel-injection test  
tubing 1 680 750 067

supersedes -

company Saurer  
D 4 KTM  
engine 184 kW

Komb.-Nr. 0 402 046 744 X

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	9,9+0,1	16,0-16,2	0,5(0,9)			
300	5,0-5,2	2,3-2,9	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
750	13,1-13,9	750	13,5	7,6 4,0 1350	1145-1160 1200-1230 0 - 1,0	300	5,1	100 300 450-480 = 2,0	min. 6,5 5,0-5,2 = 2,0	700 930 1030 1100	9,9-10,0 9,6-9,9 9,0-9,2 8,7-8,9

Torque-control travel  
on flyweight assembly dimension a =

0,45

mm

Speed regulation: At 1145-1160 min<sup>-1</sup>1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
LDA 700	0,7 bar 160,0-162,0 (157,0-165,0)	-		LDA 400	0 bar 88,0-92,0 (85,0-95,0)	100	210,0-240,0

Checking values in brackets

11.84

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Testoil: SO 4113

F17

F17

# D. Adjustment Test for Manifold Pressure Compensator

SAU 12,0 d 2 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm (1)
PES 6 P..RS3049-1X + RQ.. PA 687	0,70	0	9,9-10,0
		0,45	8,6-8,7
		0,37	9,5-9,6
			8,8-9,0

## Notes

(1) when n =

rev/min and  
gauge pressure =

bar ( = maximum full-load control rod travel)



①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,0 c 4

1. Edition

En

PE 6 P 110 A 320 LS 3805-10 RQV 300-1150 PA 524-4

Komb.-Nr. 0 401 846 748

supersedes

company Daimler-Benz

engine OM 421

159 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $4,0-4,1$   
 (3,95-4,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,7+0,1	13,2-13,4	0,4(0,8)			
300	7,8-8,0	1,2-1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 22	100	min. 9,5	300	1,6-1,8
ca. 55	10,7	1190-1200					300	7,8-8,0	800	5,8-6,2
	4,0	1235-1265					410-470=2,0		200	8,2-8,4
	1400	0-1,0							260	10,0

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	132,0-134,0 (129,5-136,5)	1190-1200*	600	110,0-114,0 (107,0-117,0)	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 14,6 q 1

1. Edition

En

PE 8 P 120 A 320 LS 3807-10 RQ 300/1150 PA 546-2

supersedes-

company Daimler-Benz

engine OM 422 LA

276 kW

Komb.-Nr. 0 401 848 753

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je  $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$   
 Values only apply to test nozzle-and-holder  
 assembly 1 688 901 019 and fuel-injection test  
 tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

 $4,0 - 4,1$   
 $(3,95 - 4,15)$ 

mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,0+0,1	18,2-18,4	0,5(0,9)			
300	5,4-5,6	1,2-2,0	0,8(1,2)			
750	-	C. Sp. 4 u. 5	0,8(1,2)			
500						

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 4		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 8		Torque control rev/min 11		Control rod travel mm 12	
600	19,2-20,8	600	20,0	11,0	1195-1210	300	4,9	100 min. 6,5	150	12,0-12,1			
VH=max. 46°				4,0	1255-1285			300 5,4-5,6	750	12,4-12,5			
				1350	0-1,0			365-415=2,0	900	12,2-12,4			

Torque-control travel  
on flyweight assembly dimension a =

0,2

mm

Speed regulation: At

1195-1210 min<sup>-1</sup>1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7	
LDA 1150	0,7 bar 182,0-184,0 (179,0-187,0)		-	LDA 750	0,7 bar 195,0-198,0 (192,0-201,0)	100	140,0-160,0 (136,0-164,0)		
				LDA 500	0 bar 141,0-143,0 (138,0-146,0)				

Checking values in brackets

# D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 q 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
PE 8 P .. LS 3807 + RQ..PA 546-1	0	0,40	10,5 - 10,7	
		0,55	11,1 - 11,2	
			12,2 - 12,4	

## Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 OMB 4,4 d 1

4. Edition

En

**Testoil-ISO 4113**

PES 4 A 90 D 410 RS 2195 Z

RSV 325-1050 A 4 B 1079 DL

Komb.-Nr. 0 400 874 213

supersedes 12.80

company OMB

engine CO 3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke (2,10-2,30)  
2,15-2,25 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,3+0,1	7,9 - 8,0	0,3(0,45)			
325	6,4-6,6	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0				ca. 26	325	6,0	1050	11,3-
	X	4,5					100	min. 19,0		11,4
							325	6,4-6,6	500	11,3-
							455-5	15 = 2,0		11,5
							575	max. 1,0	375	11,5-
⑤ ca. 63	1090-	100 = 10,3								12,1
	1135-	165 = 4,0								
	1300	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat. Note: changed to ... rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F) rev/min 1	cm <sup>3</sup> /1000 strokes 2		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1050	79,5 - 80,5 (77,5 - 82,5)	-	600	69,5 - 72,5 (67,5 - 74,5)	100	19,0-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.84

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①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 u 2

5. Edition

En

**Testoil-ISO 4113**

PES 6 A 90 D 410 RS 2568 ROV 300-1400 AB 1066-1 DL (1)

supersedes 81

RSV 350-1400 AO B2075 L (2)

company Daimler-Benz

AOC 2075 L

engine OM 352A

Set idle-speed auxiliary spring at 2 mm control-rod travel (1) 127 kW (173 PS)  
(2) 123 kW (167 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,05-2,15  
(2,00-2,20) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	12,9-13,0	7,7 - 7,8	0,3(0,45)	13,0-13,1	7,5 - 7,7	n = 1380
300	8,9- 9,1	1,1 - 1,7	0,2(0,4)	8,9- 9,1	0,7 - 1,3	n = 350
800/500	---	C, 4-5	0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

1066-1 DL

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1400	15,2-17,8	-	-	-	ca.16	100 300 740-800=2,0	min.10,5 8,9-9,1 2,0	300 490 1450	1,3 2,5-2,7 8,6
ca.62	12,0 4,0 1800	1440-1450 1590-1620 0 - 1,0				400-470				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed ②b limitation intermediate speed 4a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤ travel Control rod travel mm 9	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	mm 9
LDA 1400	0,7 bar 77,0 - 78,0 (75,0 - 80,0)	1440-1450*	LDA 800	0,7 bar 81,5 - 83,5 (79,5 - 85,5) 0 bar 49,5 - 51,5 (47,5 - 53,5)	100	72,25-82,25	1400 1450 1075 500	12,9-13,0 13,1-13,4 13,7-13,9 14,0-14,1
			LDA 500		100-220 (80-240)			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.84

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The numbers denote the sequence of the tests

MB 5,7 u 2  
2075 L (2)

-2-

## B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose  ca. 52 ②a	800	0,3-1,0				ca. 19	350	8,5	1380	13,0-13,1
	x	= 2,75					350	8,9-9,1	1050	13,4-13,6
	12,0	1420-1430					430-490	=2,0	500	13,6-13,7
	4,0	1480-1500								
	1640	0,4 - 1,7								

Testoil-ISO 4113

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery		⑤	④a Idle stop	
Test oil temp. 40°C (104°F)		Note. changed to ...)				Idle				
rev/min	cm <sup>3</sup> /1000 strokes	rev/min		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm	
1	2	3		4	5	6	7	8	9	
1380	75,5 - 76,5 (73,5 - 78,5)	1420-1430*		900	77,5 - 80,0 (75,5 - 82,0)	100	90,0-100,0 (87,0-103,0) =17,0-17,4 mm RW	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
2568 with 1066-1D	0,7		14,0 - 14,1
		0,45	13,4 - 13,5
		0,15	12,1 - 12,3
		0	11,6 - 11,7

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

En

# Test Specifications

## Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 o 1  
5. Edition

En

PES6A90D410RS2293 RSV575-1250A1B618L  
Komb.-Nr. 0 400 876 192

supersedes 5.84  
company Daimler-Benz  
engine OM 352  
88 kW (120 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

### A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,15-2,25}{(2,10-2,30)}$  mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm <sup>3</sup> /100 strokes	cm <sup>3</sup> /100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
1	2	3	4	2	3	6
1230	10,5+0,1	6,1-6,2	0,3(0,45)			
575	6,4-6,6	1,1-1,7	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in  

### B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	800	0,3-1,0	-	-	-	ca. 31	575	6,5	-	-
	X=5,0						100	min. 19,0		
Ca. 62							575	6,4-6,6		
⑤	9,5	1250-1260					600	6,30=2,0		
	4,0	1275-1295						**		
	1350	0,3-1,7								

\*\* Set idle-speed auxiliary spring at 2.0 mm control-rod travel, then 1/2 turn back.

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1230	61,0-62,0 (59,0-64,0)	1250-1260*	-	-	100	78,0-88,0 (75,0-91,0)	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col 2

12.84

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 u 5

2. Edition

En

PES 6 A 90 D 410 RS 2569 RQV 300-1400 AB 1055-2 DL  
Komb.-Nr. 0 400 846 480

superseded 81

company Daimler-Benz

engine OM 352

88,3 kW (120 PS)

## Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,25-2,35}{(2,20-2,40)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	9,8-9,9	5,5 - 5,6	0,3(0,45)			
300	8,2-8,4	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in 

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1400	15,2-17,8				ca. 24	300	8,3	300	1,2+0,1
							100	min. 9,8	675	3,9+0,2
ca. 64	8,8	1440-1450					300	8,2-8,4	450	8,0-8,1
	4,0	1530-1560					550-610	2,0mm		
	1630	0 - 1,0				3a				

Torque control travel a = mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	54,5 - 55,5 (52,5 - 57,5)	1440-1450*	500	46,5 - 49,5 (44,5 - 51,5)	100	73,0-83,0 (70,0-86,0) = 14,8-15,2 mm RW	1400	9,8-9,9
							1000	10,1-10,4
							630	10,8-11,0
							500	11,0-11,1

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.84

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①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 u  
5. Edition

En

PE 6 P 120 A 720 RS 7001 RQV 200-1000 PA 539

Values only apply to test nozzle-and-holder  
assembly 1 688 901 019 and fuel-injection test  
tubing 1 680 750 015

supersedes 5.83

company: Scania

engine: DS 11 15

Komb.-Nr. 0 402 646 801

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

## A. Fuel Injection Pump Settings

bis FD 052: 4,40-4,50  
(4,35-4,55)

ab FD 141: 5,0-5,1

Port closing at prestroke

(4,95-5,15)

mm (from BDC)

bei RW = 2,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> / 100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,2±0,1	19,9-20,1	0,6 (0,9)			3,3 ± 0,1 ** (3,0 - 3,5)
225	4,4-4,6	1,3-1,7	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod/travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1000	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	150	0,5-0,8
ca. 60°	12,2	1040-1050					225	4,4-4,6	430	3,0-3,5
	4,0	1150-1180					310-370	2,0	720	5,0-5,2
	1300	0 - 1,0				③a			1000	7,7

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed (2b) limitation intermediate speed (4a)	Fuel delivery characteristics (5a) high idle speed (5b)		Starting fuel delivery (6) idle switching point		Torque-control (5) travel  Control rod travel mm	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9
LDA 700	0,9 bar  199,0-201,0 (196,0-204,0)	1040-1050*	LDA 1000  LDA 500	0,9 bar  193,0-201,0 (191,0-203,0)  0 bar 160,0-164,0 (158,0-166,0)	100	240,0-290,0  bei 20,0 - 21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.84

Testoil-ISO 4113

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## D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 u - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PE 6 P..RS 7001 + ..PA 539	0,42	0,90 0 0,29	12,8 - 12,9 13,2 - 13,3 11,6 - 11,7 11,9 - 12,1

Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

SCA 11,0 y 1

### S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 18.8.1983
- Start of fuel delivery-engine: 17° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

\*\* Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 - 3,1 mm.

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 u8  
3. Edition

En

PE 6 P 120 A 720 RS 7001 RQV200-1000 PA 612

Values only apply to test nozzle-and-holder  
assembly 1 688 901 019 and fuel-injection test  
tubing 1 680 750 015

supersede 5.83

company Scania

DN 11 06, 07

engine BUS-Motor

Komb.-Nr. 0 402 646 807

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

ab FD 141: 5,0-5,1 bis FD 052: 4,4-4,5 mm  
Port closing at prestroke (4,95-5,15) mm (from BDC) (4,35-4,55)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	11,3+0,	15,7-15,9	0,6(0,9)			3,3 <sup>±</sup> 0,1 (3,0-3,5) ..
225	4,4-4,6	1,1-1,5	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1000	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	150	0,5-0,8
ca. 59	10,3 4,0 1250	1040-1050 1115-1145 0-1,0				3a	225 310-370=2,0	4,4-4,6	430 720 1000	3,0-3,5 5,0-5,2 7,7

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
600	157,0-159,0 (154,0-162,0)	1040-1050*	1000	154,0-162,0 (152,0-164,0)	100	24,0-290,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.84

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S U P P L E M E N T A R Y   I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 18.8. 1983
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

\*\* Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 - 3,1 mm.

②

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 14,6 e  
6. Edition

40

En

PE8P110A320 LS 3802

RQ 300/1150 PA 187-3

RQ 300/1150 PA 187-5

supersedes 9.83

company: Daimler-Benz

engine: OM 422  
206 kW (280 PS)

Komb.-Nr. 0 401 848 708

1-8-7-2-6-3-5-4 je  $45^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$ 

Note VDT-1-420/114

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

(3,95-4,15)

mm (from BDC)  $\Delta W = 9,0-12,0$  mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery mit RSD (1) cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery ohne RSD (2) cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,3+0,1	12,7-12,9	0,4(0,8)	11,7+0,1	13,3-13,5	
300	8,0-8,1	1,5-2,1	0,4(0,7)	7,9-8,1	1,5-2,1	
600	12,3+0,1	C, Sp. 4 u. 5	0,8(1,1)	11,7+0,1	C, Sp. 4 u. 5	

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
650	13,0-14,0	650	13,5	11,3 4,0 1350	1195-1210 1235-1265 0 - 1,0	300	8,1	100 300 420-460 550	min. 10,2 8,0-8,2 = 2,0 max. 1,8	-	-

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1195-1210 min.

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm <sup>3</sup> /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm <sup>3</sup> /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm <sup>3</sup> /1000 strokes/mm 7	
1150 (1)	127,0-129,0 (124,0-132,0)		600	600	118,0-122,0 (115,0-125,0)	100	130,0-150,0

Checking values in brackets

11.84

**Testoil-ISO 4113**
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## B. Governor Settings

MB 14,6 e -2-

②

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12	11	12		
650	13,0-14,0	650	13,5	10,7 4,0 1350	1195-1210 1230-1260 0-1,5	300	8,1	100 300 420-460 550	min. 10,2 8,0-8,2 =2,0 max. 1,8	-	-				
										1195-1210 min <sup>-1</sup>					
Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel															

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm <sup>3</sup> /- 1000 strokes	rev/min		rev/min	cm <sup>3</sup> /- 1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes / mm
1	2	3		4	5	6	7
1150 (2)	132,5-134,5 (130,0-137,0)	600		600	109,5-115,5 (106,5-118,5)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

**Testoil-ISO 4113**

## B. Governor Settings

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm <sup>3</sup> /- 1000 strokes	rev/min		rev/min	cm <sup>3</sup> /- 1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes / mm
1	2	3		4	5	6	7

En Checking values in brackets

①

# Test Specifications Fuel Injection Pumps ① and Governors

 VDT-WPP 001/4 MAC 11,0 x 3  
2. Edition

En

US-PES6P110A720RS6006 US-RQV300/600-1050PA621-2K

superseded 3.83

company: Mack

engine: EME 6 - 250  
250 PS

Komb. - Nr. 9 400 231 155

PLE-Maß = 0,740" - 0,820"

Note VDT-I-MAC 002 !

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

 Port closing at prestroke  
3, 2 - 3, 3  
( 3, 15 - 3, 35 ) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,9+0,1	18,9 - 19,1	0,4			
300	5,3-5,5	1,4 - 2,4	0,4			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1120	15,2-17,8	-	-	-	ca. 20	250	9,8-11,3	-	-
ca. 62	10,9 4,0 1240	1090-1100 1165-1195 0 - 1,0				3a	300 400 690-750 = 2,0	7,9-8,1 3,8-5,2 2,0		

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	4a	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1050	188,5-190,5	1090-1100 *		850	197,5-200,5	100	110,0-170,0	1050	11,9
				630	210,5-213,5			950	11,9+0,1
					PLE			850	12,0+0,1
				800	134,0-142,0			750	12,2+0,1
								630	12,6+0,1
								500	12,2+0,1

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.84

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# Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8g 1

4. Edition

En

Test-ISO 4113

VA 6/110 H 1100 CR 180-1  
CR 180-1 P

0 460 316 018

supersedes 6,83

company IHC

engine DT 358 "1246"

Nozzle-and-holder assembly  
1 688 901 020 (172 + 3 bar)

Pre stroke setting  $0,5 \text{ mm} \pm 0,02 (\pm 0,04)$   
Setting of the pointer at a stroke of 1,0 mm in relation  
to outlet "A".

All test specifications are valid for  
Bosch Fuel Injection Pump Test Benches  
and Testers  
Test Instructions and Test Equipment  
VDT WPP 161/4 B  
Pre setting see reverse side

1. Settings	rev/min	Settings	Charge air press kp/cm <sup>2</sup>	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	800	5,7-6,7 mm	0	
1.2 Supply pump pressure	800	4,8-5,3 kp/cm <sup>2</sup>	0	
1.3 Full load delivery without charge air pressure	800	77,0-79,0 cm <sup>3</sup> /1000 strokes	0	
Full load delivery with charge air pressure	800	85,5-86,5 cm <sup>3</sup> /1000 strokes	0,4	2,5
1.4 Idle speed regulation	450	14,5-20,5 cm <sup>3</sup> /1000 strokes	0	3,0
1.5 Start	100	mind. 95,0 cm <sup>3</sup> /1000 strokes	0	
1.6 Full load speed regulation	1180	41,0-49,0 cm <sup>3</sup> /1000 strokes	0,4	

## 2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min mm	200-350(170-380) Beginn	400 1,0-2,0(0,7-2,3)	800 (5,4-7,0)	900-1050 6,9-7,6(6,6-7,9)
2.2 Supply pump	rev/min kp/cm <sup>2</sup>	200 1,3-1,8(1,1-2,0)		800 (4,6-5,5)	1100 6,0-6,4(5,8-6,6)
Overflow delivery	rev/min cm <sup>3</sup> /10 s	500 55-100(40-110)			1100 55-100(40-110)

### 2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm <sup>3</sup> /1000 strokes	Charge air pressure kp/cm <sup>2</sup>
End stop	Full	1210-1280 (1190-1300)	0	0,4
		1180	(40,0-50,0)	0,4
		1100-1130	Beginn	
		1050	86,5-89,5 (85,5-90,5)	0,4
		800	(85,0-87,0)	0,4
		800	(76,0-80,0)	0
		500	78,5-81,5(77,5-82,5)	0,2
	Stop	1100	0	
Idle stop	Full	530-580 (510-600)	0	
		450	(13,5-21,5)	
End stop	Start	100	mind. 95,0	
		220-320		

01.85

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Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma$ $\delta$	Pump Dimension $\bar{TV}$ 0,6 mm Dimension $\bar{V}$ 24,6 mm

Stop check at  $n = 70 \text{ min/1}$

LDA start: 0.04 - 0.07

End : 0.21 - 0.25

# Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8g 2

3. Edition

En

Testol-50 4113

VA 6/110 H 1100 CR 180-2

0 460 316 022

DIHK: 1 688 901 020/172+3 bar

supersedes 6.83  
IHC  
company  
engine DT 358

Nozzle-and-holder assembly  
1 688 901 020 (172 + 3 bar)

Pre-stroke setting  $0,5 \text{ mm} \pm 0,02 (\pm 0,04)$   
Setting of the pointer at a stroke of 1,0 mm in relation  
to outlet "A".

All test specifications are valid for  
Bosch Fuel Injection Pump Test Benches  
and Testers  
Test Instructions and Test Equipment  
VDT WPP 161/4 B  
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge air press kp/cm <sup>2</sup>	Difference in delivery cm <sup>3</sup>
1 1 Timing device travel	800	5,7-6,7 mm	0	
1 2 Supply pump pressure	800	4,8-5,3 kp/cm <sup>2</sup>	0	
1 3 Full-load delivery without charge-air pressure	800	77,0-79,0 cm <sup>3</sup> /1000 strokes	0	
Full-load delivery with charge air pressure	800	85,5-86,5 cm <sup>3</sup> /1000 strokes	0,4	2,5
1 4 Idle speed regulation	450	14,5-20,5 cm <sup>3</sup> /1000 strokes	0	3,0
1 5 Start	100	mind. 95,0 cm <sup>3</sup> /1000 strokes	0	
1 6 Full-load speed regulation	1180	41,0-49,0 cm <sup>3</sup> /1000 strokes	0,4	

2. Test Specifications	Checking values in brackets	400	800	900-1050
2 1 Timing device	rev/min mm	200-350 (170-380) Beginn	1,0-2,0 (0,7-2,3)	(5,4-7,0) 6,9-7,6 (6,6-7,9)
2 2 Supply pump	rev/min kp/cm <sup>2</sup>	200 1,3-1,8 (1,1-2,0)	800 (4,6-5,5)	1100 6,0-6,4 (5,8-6,6)
Overflow delivery	rev/min cm <sup>3</sup> /10 s	500 55-100 (40-110)		1100 55-100 (40-110)

2 3 Fuel deliveries	Speed control lever	Delivery lever	rev/min	cm <sup>3</sup> /1000 strokes	Charge air pressure kp/cm <sup>2</sup>
End stop	Full	Full	1210-1280 (1190-1300)	0	0,4
			1180	(40,0-50,0)	0,4
			1100-1130	Beginn	
			1050	86,5-89,5 (85,5-90,5)	0,4
			800	(85,0-87,0)	0,4
			800	(76,0-80,0)	0
			500	78,5-81,5 (77,5-82,5)	0,2
			1100	0	
Idle stop	Full	Full	530-580 (510-600)	0	
			1050	(13,5-21,5)	
End stop	Start	Start	100	mind. 95,0	
			220-320		

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma$ $\delta$	Pump Dimension $\bar{r}_V$ 0,60 mm Dimension $\nabla$ 24,60 mm

Stop check at  $n = 70 \text{ min/1}$

LDA start: 0.04 - 0.07

End : 0.21 - 0.25

⑥

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP 001/4 Volvo 3,6 n

3. Edition

46

En

7.84

Testoil-ISO 4113

VE 6/11 F 1800 L 18-3

Overflow temperature 45° C

supersedes Volvo

company: TD 40 A (93 kW)

engine:

0 460 416 027

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm  $\pm 0,02$  (0,04)

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	3,6-4,0 mm	0,75	
1.2 Supply pump pressure	1500	6,6-7,2 bar (kgf/cm <sup>2</sup> )	0,75	
1.3 Full-load delivery with charge-air pressure	1500	57,0-58,0 cm <sup>3</sup> /1000 strokes	0,75	3,0(4,0)
Full-load delivery without charge-air pressure	500	40,0-42,0 cm <sup>3</sup> /1000 strokes	0	
1.4 Idle regulation	325	8,0-12,0 cm <sup>3</sup> /1000 strokes	0	3,0(4,0)
1.5 Full-speed regulation	2000	19,0-25,0 cm <sup>3</sup> /1000 strokes	0,75	
1.6 Start	100	min. 60,0 cm <sup>3</sup> /1000 strokes	0	
1.7 Load-dependent port-closing	-			

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1100	1500	1800
LDA=0,75 bar	mm	1,6-2,4 (1,3-2,7)	(3,1-4,5)	4,5-5,3 (4,2-5,6)
2.2 Supply pump	n = rev/min	400		1800
LDA=0,75 bar	bar (kgf/cm <sup>2</sup> )	2,5-3,1		7,7-8,3
Overflow delivery	n = rev/min	500		1800
	cm <sup>3</sup> /10 s	55-138 (40-153)		55-138 (40-153)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )
End stop	2100	max. 2,0	0,75
	2000	(17,5-26,5)	0,75
	1900	38,0-48,0 (38,0-48,0)	0,75
	1800	52,5-55,5 (51,3-56,6)	0,75
	1500	(54,8-60,1)	0,75
	*500	46,0-48,0 (43,6-50,4)	0,28
	500	(37,6-44,4)	0
switch-off			
Idle stop	400	max. 3,0	
	325	5,5-14,5	
End stop	110	min. 60	
	220	max. 40	
2.4 Solenoid	max. cut-in voltage	xxx min. 10. V	
	test voltage	rated voltage 12V.	
	XXXX		

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	-
KF	5,9-6,2
MS	1,2-1,4
SVS	max. 4,7
A XK	20,2-22,2
B XL	10,4-16,4

## Observations

\* Manifold-pressure compensator stroke = 4,0 mm  
Correction at the adjusting nut. (46)

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⑥

# Test Specifications

## Distributor-type Fuel-injection Pumps

46

WPP 001/4 MAN 5,6 b

2. Edition

En

VE 6711 F 1500 R 49  
0 460 416 008

Overflow temperature 45° C

Setting of the pointer at a stroke of 1,0 mm in relation to outlet "A".

supersedes  
company  
engine: MAN  
D 0226 M

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,6 mm  $\pm$  0,02(0,04) mm

see VDT-W-460/

Test Specifications

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1000	6,0-6,4 mm		
1.2 Supply pump pressure	1000	5,7-6,3 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge-air pressure	1000	63,5-64,5 cm <sup>3</sup> /1000 strokes		2,5 (4,0)
1.4 Idle regulation	300	8,0-12,0 cm <sup>3</sup> /1000 strokes		2,5 (4,0)
1.5 Full-speed regulation	1550	52,0-58,0 cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 60,0 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	-	-		

### 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	600 3.8-4,6(3,5-4,9)	1000 (5,5-6,9)	1400 8,7-9,5 (8,4-9,8)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 3.2-3.8	1500 7,3-7,9	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-110 (40-125)	1500 55-110 (40-125)	

### 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	1680 1630 1550 1500 1000 600	max. 4,0 12,0-21,0 (50,5-59,5) 69,5-71,5 (67,9-73,2) (61,3-66,7) 46,0-49,0 (44,1-50,9)	
switch-off	1500	0	
Idle stop	400-470 300	0 (5,5-14,5)	
End stop	370 470		
2.4 Solenoid	max. cut-in voltage test voltage xxxxxxx	xxx min. 20,0 V xx rated voltage 12V.	

### 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	-
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 4,6
xx XK	18,6-20,6
xx XL	9,0-12,8

### Observations

Pulling electro-  
magnet

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# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP 001/4 IBE 4,0a

3. Edition

En

VE 4/12 F 1300 R 103

Overflow temperature 45° C

 supersedes  
company:  
engine:

 1.84  
Iberica  
T 4.236

0 460 424 004

DHK: 1 688 901 020

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm

see VDT-W-460/...

Testo 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1000	4,0-4,4 mm	0,8	
1.2 Supply-pump pressure	1000	5,5-6,1 bar (kgf/cm <sup>2</sup> )	0,8	
1.3 Full-load delivery with charge-air pressure	500	66,0-67,0 cm <sup>3</sup> /1000 strokes	0	
Full-load delivery without charge-air pressure	800	94,0-95,0 cm <sup>3</sup> /1000 strokes	0,8	4,0 (4,5)
1.4 Idle regulation	300	6,0-12,0 cm <sup>3</sup> /1000 strokes	0	3,5 (4,5)
1.5 Full-speed regulation	1400	64,0-72,0 cm <sup>3</sup> /1000 strokes	0,8	
1.6 Start	100	min. 70,0 cm <sup>3</sup> /1000 strokes	0	
1.7 Load-dependent port-closing	-	-		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device LDA=0,8 bar	n = rev/min mm	500 0,4-1,2(0,1-1,5)	1000 (3,5-4,9)	1300 5,6-6,4 (5,3-6,7)
2.2 Supply pump LDA=0,8 bar	n = rev/min bar (kgf/cm <sup>2</sup> )	500 3,3-3,9		1300 6,7-7,3
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-110(40-125)		1300 55-110(40-125)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	1640 1580 1400 1300 800 *800 500	max. 1,0 max. 5,0 (63,0-73,0) 84,5-87,5(83,0-89,0) (91,5-97,5) 91,0-92,0(87,7-95,3) (62,7-70,3)	0,8 0,8 0,8 0,8 0,8 0,42 0
switch-off			
Idle stop	430 370 300	max. 1,0 max. 3,0 (4,0-14,0)	
End stop	110 210	min. 70,0 max. 70,0	
2.4 Solenoid	max. cut-in voltage test voltage	xxxx min. 10,0 V xxxxxx rated voltage 12V.	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	mm
K	--
KF	5,1-5,4
MS	1,1-1,35
SVS	5,0
AK	20,2-22,2
XL	8,6-11,9

## Observations

\*  
Manifold-pressure  
compensator stroke  
= 4,2 mm  
Correction at the  
adjusting nut. (46)

⑥

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

46

WPP 001/4 BMW 2,4 d

1. Edition

En

Testoil-ISO 4113

VE6/10F2400 R 117

0 460 406 023

DHK: 1688 901 022/130 bar

Test pressure line

6x2x450/1 680 750 073

Overflow temperature 45° C

supersedes

company BMW-USA

engine M21D24

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	4,5-4,9 mm	1,050	
1.2 Supply-pump pressure	1500	6,1-6,5 bar (kgf/cm <sup>2</sup> )	1,050	
1.3 Full-load delivery with charge-air pressure	1500	39,5-40,5 cm <sup>3</sup> /1000 strokes	1,050	max. 3,0
Full-load delivery without charge-air pressure	500	21,5-22,5 cm <sup>3</sup> /1000 strokes	0	max. 3,0
1.4 Idle regulation	400	6,0-10,0 cm <sup>3</sup> /1000 strokes	0	max. 3,0
1.5 Full-speed regulation	2600	17,0-23,0 cm <sup>3</sup> /1000 strokes	1,050	
1.6 Start	250	35,0-37,0 cm <sup>3</sup> /1000 strokes	0	
1.7 Load-dependent port-closing	-			

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	Please note instructions on sheet 2	
2.2 Supply pump	n = rev/min	500	2300
LDA=1,050 bar	bar (kgf/cm <sup>2</sup> )	3,2-3,6	8,1-8,5
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138(40-153)	2400 55-138(40-153)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )
End stop	2700	7,0-13,0 (6,0-14,0)	1,050
	2600	(16,0-24,0)	1,050
	2400	39,5-41,5 (37,9-43,1)	1,050
	1500	(37,4-42,6)	1,050
	*750	31,5-32,5 (29,4-34,6)	0,5
	500	(19,0-25,0)	0
switch-off			
Idle stop	450	max. 3,0	
	400	(4,0-12,0)	
	**850	16,0-18,0	
	100	27,0-37,0	
	400	28,0-38,0	
Please note instructions on sheet 2.	480	19,2-23,3	
2.4 Solenoid	max. cut-in voltage	xxx min. 10 V	
	rated voltage	12V.	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,3
KF	6,4-6,6
MS	1,4-1,6
SVS	3,4
AXK	20,2-22,2
BXL	9,5-12,8

## Observations

- \* Manifold-pressure compensator stroke = 7,5 mm
- \*\*Adjust EGR with gauge

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## 2.1 Timing device

n = min/1	LDA	Solenoid valve	mm
*** 500	1,050 bar	12 V	1,9-2,9 (1,7-3,1)
750	1,050 bar	0 V	1,6-2,4 (1,6-2,7)
***1000	1,050 bar	12 V	3,7-4,7 (3,5-4,9)
1500	1,050 bar	0 V	(4,0-5,4)
2300	1,050 bar	0 V	7,3-8,1 (7,0-8,4)

### \*\*\* Testing the hydr. cold-start accelerator

Exhaust gas recirculation driver 850  
 Start-Inspection point 100  
 Limit stop 400  
 480



⑥

# Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 3,9 a 4

1. Edition

En

VE 4/12 F 1050 R 123-4

Overflow temperature 45° C

0 460 424 010

DHK: 1 688 901 016 / 207 + 3 bar

supersedes  
company Cummins  
engine 4 BT-390

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0,3

mm

± 0,02 (0,04)

see VDT-W-460/

1. Settings	Rot speed rev/min	Settings	Charge air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1 1 Timing device travel	900	2,3-2,7	mm	
1 2 Supply pump pressure	900	4,5-5,1	bar (kgf/cm <sup>2</sup> )	
1 3 Full-load delivery with charge-air pressure	-	-	cm <sup>3</sup> /1000 strokes	
Full-load delivery without charge-air pressure	900	85,0-86,0	cm <sup>3</sup> /1000 strokes	4,0 (4,5)
1 4 Idle regulation	375	18,5-24,5	cm <sup>3</sup> /1000 strokes	3,5 (4,5)
1 5 Full-speed regulation	1120	46,0-54,0	cm <sup>3</sup> /1000 strokes	
1 6 Start	100	min. 97,0	cm <sup>3</sup> /1000 strokes	
1 7 Load-dependent port-closing	-	-		

## 2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min mm	750 1,2-2,0(0,9-2,3)	900 (1,8-3,2)	1050 3,0-3,8(2,7-4,1)
2 2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 2,3-2,9	750 3,9-4,5	1050 5,2-5,8
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	400 55-138(40-153)	1050 55-138(40-153)	

## 2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )
End stop	1185 1120 1050 900 750 400	max. 1,5 (45,0-55,0) 79,5-82,5 (78,0-84,0) (82,5-88,5) 84,5-88,5 (82,7-90,2) 84,5-88,5 (82,7-90,2)	
switch-off			
Idle stop	450 375 300	max. 1,5 (16,5-26,5) 44,0-50,0 (42,0-52,0)	
End stop	130 200	min. 97,0 max. 85,0	
2 4 Solenoid	max. cut-in voltage test voltage	xx min. 10 V xxx rated voltage 12V.	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	4,0
A	
B	

## Observations

Stop check electric  
shutoff device at  
375 min/1

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# Test Specifications

## Distributor-type

## Fuel-injection Pumps

46

WPP 001/4 CUM 3,9 a 6

1. Edition

En

VE 4/12 F 1050 R 123-6  
O 460 424 012

Overflow temperature 45° C

supersedes  
company Cummins  
engine 4 BT - 390 Ind.

DHK: 1688 901 016/207 + 3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm  $\pm$  0,02 (0,04)

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1 1 Timing device travel	900	2,3-2,7 mm		
1 2 Supply-pump pressure	900	4,5-5,1 bar (kgf/cm <sup>2</sup> )		
1 3 Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge-air pressure	900	64,5-65,5 cm <sup>3</sup> /1000 strokes		4,0 (4,5)
1 4 Idle regulation	375	18,5-24,5 cm <sup>3</sup> /1000 strokes		3,5 (4,5)
1 5 Full-speed regulation	1100	31,0-39,0 cm <sup>3</sup> /1000 strokes		
1 6 Start	100	min. 97,0 cm <sup>3</sup> /1000 strokes		
1 7 Load-dependent port-closing	-	-		

### 2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min mm	750 1,1-1,9 (0,8-2,2)	900 (1,8-3,2)	1050 3,2-4,0 (2,9-4,3)
2 2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	500 2,8-3,4	750 3,8-4,4	1050 4,9-5,5
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)	1050 55-138 (40-153)	

### 2 3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	1150 1100 1050 900 750 500	max. 1,5 (30,0-40,0) 59,5-62,5 (58,0-64,0) (62,0-68,0) 64,0-68,0 (62,2-69,7) 60,0-64,0 (58,2-65,7)	
switch-off			
Idle stop	450 375 300 130 200	max. 1,5 (16,5-26,5) 40,3-46,3 (38,3-48,3) min. 97,0 max. 85,0	

### 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	4,2
A	
B	

### Observations

Stop check electric  
shutoff device at  
375 min/1

2 4 Solenoid	max. cut-in voltage test voltage xxxxxxxxxx	xxx min. 10 V rated voltage 12V.
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⑥

# Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 3,9 a 9

1. Edition

En

VE 4/12 F 1050 R 123-9  
0 460 424 018

Overflow temperature 45° C

supersedes  
company Cummins  
engine 4 BT-390 Ind.

DHK: 1 688 901 016/207 + 3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm + 0,02 (0,04)

see VDT-W-460/

1. Settings	Rot speed rev/min	Settings	Charge air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	900	2,3-2,7 mm		
1.2 Supply pump pressure	900	4,5-5,1 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge-air pressure	900	64,5-65,5 cm <sup>3</sup> /1000 strokes		4,0 (4,5)
1.4 Idle regulation	375	18,5-24,5 cm <sup>3</sup> /1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1100	31,0-39,0 cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 97,0 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	-	-		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	750 1,1-1,9 (0,8-2,2)	900 (1,8-3,2)	1050 3,2-4,0 (2,9-4,3)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	500 2,8-3,4	750 3,8-4,4	1050 4,9-5,5
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)	1050 55-138 (40-153)	

## 2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )
End stop	1150 1100 1050 900 750 500	max. 1,5 (30,0-40,0) 59,5-62,5 (58,0-64,0) (62,0-68,0) 64,0-68,0 (62,2-69,7) 60,0-64,0 (58,2-65,7)	
switch-off			
Idle stop	450 375 300 130 200	max. 1,5 (16,5-26,5) 40,3-46,3 (38,8-48,3) min. 97,0 max. 85,0	
End stop			
2.4 Solenoid	max. cut-in voltage test voltage	xxx min 10 V xxx rated voltage 12V.	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	4,2
A	
B	

## Observations

Stop check electric  
shutoff device at  
375 min/1

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⑥

# Test Specifications

## Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 3,9 a 10

1. Edition

En

VE 4/12 F 1250 R 123-10  
0 460 424 019

Overflow temperature 45° C

DHK: 16 88 901 016/207+3 bar

 supersedes -  
 company Cummins  
 engine 4 BTA-390

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm  $\pm$  0,02 (0,04)

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	850	3,7-4,1 mm		
1.2 Supply pump pressure	850	5,9-6,5 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge-air pressure	1100	97,5-98,5 cm <sup>3</sup> /1000 strokes		4,0 (4,5)
1.4 Idle regulation	375	22,0-28,0 cm <sup>3</sup> /1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1340	28,0-34,0 cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 105,0 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	-	-		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	500 1,8-2,6 (1,5-2,9)	850 (3,2-4,6)	1100 4,6-5,4 (4,3-5,7)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	500 4,3-4,9	1100 6,7-7,3	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)	1250 55-138 (40-153)	

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	1400 1340 1290 1250 1100 850 500	max. 2,0 (26,0-36,0) 68,0-76,0 (67,0-77,0) 91,5-94,5 (90,0-96,0) (95,0-101,0) 102,0-106,0 (100,2-107,7) 90,5-94,5 (88,7-96,2)	
switch-off			
Idle stop	450 375 300 130 250	max. 2,0 (20,0-30,0) 45,0-53,0 (44,0-54,0) min. 105,0 max. 105,0	
2.4 Solenoid	max. cut-in voltage test voltage	xxxx min. 10 V xxxx rated voltage 12V.	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	mm
K	-
KF	5,2-5,5
MS	0,7-0,95
SVS	3,0
A	
B	

## Observations

 Stop check electric  
 shutoff device at  
 375 min/1

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# Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 OPE 2,3 g

1. Edition

En

VE 4/10 F 2100 L 155

Overflow temperature 45° C

 superseded  
company Opel  
engine: 2,3 TD

0 460 404 036

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W 460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	5,1-5,5 mm	0,8	
1.2 Supply-pump pressure	1500	5,5-6,1 bar (kgf/cm <sup>2</sup> )	0,8	
1.3 Full-load delivery with charge-air pressure	1200	58,5-59,5 cm <sup>3</sup> /1000 strokes	0,8	3,0
Full-load delivery without charge-air pressure	500	36,0-37,0 cm <sup>3</sup> /1000 strokes	0	
1.4 Idle regulation	290	13,5-17,5 cm <sup>3</sup> /1000 strokes	0	3,0
1.5 Full-speed regulation	2425	15,0-21,0 cm <sup>3</sup> /1000 strokes	0,8	
1.6 Start	100	min. 48,0 cm <sup>3</sup> /1000 strokes	0	
1.7 Load-dependent port-closing	1500		0	

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device LDA=0,8 bar	n = rev/min mm	800 1,5-2,3 (1,2-2,6)	1200 3,4-4,0 (3,0-4,4)	1500 (4,6-6,0)	2100 7,9-8,7 (7,6-9,0)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	500 3,2-3,8	1200 4,9-5,5 (0,8 bar)	2100 6,9-7,5 (0,8 bar)	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)		2100 (0,8 bar) 55-138 (40-153)	

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )
End stop	2550	max. 6,0	0,8
	2425	(13,5-22,5)	0,8
	2300	28,5-35,5 (27,5-36,5)	0,8
	2100	46,3-48,7 (44,8-50,1)	0,8
	1200	(56,3-61,6)	0,8
	800 *	43,5-44,5 (41,3-46,6)	0,3
	500	(33,1-39,9)	0
switch-off	2100		
Idle stop	380	max. 2,5	
	320	7,0-13,0 (5,5-14,5)	
	290	(11,0-20,0)	
End stop	250	min. 50,0	
	400	max. 47,0	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	0,9-1,1
SVS	max. 3,0
A	
B	

### Observations

\* Manifold-pressure compensator stroke = 6,2 mm  
Correction at the adjusting nut. (46)  
Please note instructions on sheet 2.

2.4 Solenoid	max. cut-in voltage xxx min. 10 V rated voltage 12V.
--------------	--

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Testing the hydr. cold-start accelerator:

300 min/1 - 2,2 - 3,8 mm  
800 min/1 - 3,7 - 6,2 mm  
1200 min/1 - max. 6,2 mm

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP 001/4 OPE 2,3 h

1. Edition

En

VE 4/10 F 2100 L 156  
0 460 404 037

Overflow temperature 45° C

supersedes  
company: Opel  
engine: 2,3 TD

**Testoil-ISO 4113**

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

- mm

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	5,1-5,5 mm	0,8	
1.2 Supply-pump pressure	1500	5,5-6,1 bar (kgf/cm <sup>2</sup> )	0,8	
1.3 Full-load delivery with charge-air pressure	1200	58,5-59,5 cm <sup>3</sup> /1000 strokes	0,8	3,0
Full-load delivery without charge-air pressure	500	36,0-37,0 cm <sup>3</sup> /1000 strokes	0	
1.4 Idle regulation	290	13,5-17,5 cm <sup>3</sup> /1000 strokes	0	3,0
1.5 Full-speed regulation	2425	15,0-21,0 cm <sup>3</sup> /1000 strokes	0,8	
1.6 Start	100	min. 48,0 cm <sup>3</sup> /1000 strokes	0	
1.7 Load-dependent port-closing	1500		0	

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device LDA=0,8 bar	n = rev/min mm	800 1,5-2,3 (1,2-2,6)	1200 3,4-4,0 (3,0-4,4)	1500 (4,6-6,0)	2100 7,9-8,7 (7,6-9,0)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	500 3,2-3,8	1200 4,9-5,5 (0,8 bar)	2100 6,9-7,5 (0,8 bar)	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)		2100 (0,8 bar) 55-138 (40-153)	

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2550	max. 6,0	0,8
	2425	(13,5-22,5)	0,8
	2300	28,5-35,5 (27,5-36,5)	0,8
	2100	46,3-48,7 (44,8-50,1)	0,8
	1200	(56,3-61,6)	0,8
	800*	43,5-44,5 (41,3-46,6)	0,3
	500	(33,1-39,9)	0
switch-off	2100		
Idle stop	380	max. 2,5	
	320	7,0-13,0 (5,5-14,5)	
	290	(11,0-20,0)	
	250	min. 50,0	
	400	max. 47,0	
2.4 Solenoid	max. cut-in voltage xxx min. 10 V test voltage xxx rated voltage 12V		

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	0,9-1,1
SVS	max. 3,0
FH *	1,8-2,4
A	
B	

## Observations

Manifold-pressure  
compensator stroke  
= 6,2 mm  
Correction at the  
adjusting nut. (46)

\*operating  
stroke (KSB)

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# Test Specifications

## Distributor-type

## Fuel-injection Pumps

4/6

WPP 001/4 CUM 5,9 b

1. Edition

En

VE 6/12 F 1150 R 159-3  
0 460 426 043

Overflow temperature 45° C

supercharged Cummins

company 6 BT - 590 - 190 kW  
engine

DHK: 1 688 901 016/207 + 3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm  $\pm$  0,02 (0,04)

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1 1 Timing device travel	900	4,3-4,7 mm		
1 2 Supply pump pressure	900	4,4-5,0 bar (kgf/cm <sup>2</sup> )		
1 3 Full-load delivery with charge air pressure	-	- cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge air pressure	900	81,5-82,5 cm <sup>3</sup> /1000 strokes		4,0 (4,5)
1 4 Idle regulation	375	18,5-24,5 cm <sup>3</sup> /1000 strokes		3,5 (4,5)
1 5 Full-speed regulation	1230	29,0-37,0 cm <sup>3</sup> /1000 strokes		
1 6 Start	100	min. 97,0 cm <sup>3</sup> /1000 strokes		
1 7 Load-dependent port-closing	-	-		

## 2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min mm	500 1,2-2,0 (0,9-2,3)	900 (3,8-5,2)	1150 5,6-6,4 (5,3-6,7)
2 2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	500 2,7-3,3		1150 5,4-6,0
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)		1150 55-138 (40-153)

## 2 3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge air press bar (kgf/cm <sup>2</sup> )
End stop	1290 1230 1150 900 750 500	max. 1,5 (28,0-38,0) 74,0-77,0 (72,5-78,5) (79,0-85,0) 81,0-85,0 (79,2-86,7) 80,5-84,5 (78,7-86,2)	
switch-off			
Idle stop	450 375 300 130 200	max. 1,5 (16,5-26,5) 41,5-49,5 (40,5-50,5) min. 97,0 max. 85,0	
2 4 Solenoid	max. cut-in voltage test voltage	xxx min. 10 V rated voltage 12V.	

## 3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	1,2
A	
B	

## Observations

Stop check electric  
shutoff device at  
375 min/1

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# Test Specifications

## Distributor-type

## Fuel-injection Pumps

46

WPP 001/4 CUM 5,9 c

1. Edition

En

VE 6/12 F 1050 R 159-6

Overflow temperature 45° C

0 460 426 047

DHK: 1 688 901 016/207 + 3 bar

supercedes Cummins

company

6 BT - 590 88,5 kW

engine

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm  $\pm$  0,02 (0,04)

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1 1 Timing device travel	750	3,3-3,7 mm		
1 2 Supply-pump pressure	750	3,6-4,4 bar (kgf/cm <sup>2</sup> )		
1 3 Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		4,0 (4,5)
Full-load delivery without charge-air pressure	900	73,0-74,0 cm <sup>3</sup> /1000 strokes		3,5 (4,5)
1 4 Idle regulation	375	22,0-28,0 cm <sup>3</sup> /1000 strokes		
1 5 Full-speed regulation	1125	26,0-34,0 cm <sup>3</sup> /1000 strokes		
1 6 Start	100	min. 97,0 cm <sup>3</sup> /1000 strokes		
1 7 Load-dependent port-closing	-	-		

## 2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min mm	500 1,4-2,2 (1,1-2,5)	750 (2,8-4,2)	900 4,6-5,4 (4,3-5,7)
2 2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	500 2,6-3,2	900 4,4-5,0	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)	1050 55-138 (40-153)	

## 2 3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )
End stop	1175 1125 1050 900 750 500	max. 1,5 (25,0-35,0) 67,5-70,5 (66,0-72,0) (70,5-76,5) 74,0-78,0 (72,2-79,7) 85,5-89,5 (83,7-91,2)	
switch-off			
Idle stop	450 375 300 130 200	max. 1,5 (20,0-30,0) 55,0-63,0 (54,0-64,0) min. 97,0 max. 85,0	
2 4 Solenoid	max. cut-in voltage 10 V	xxx min. 10 V rated voltage 12V.	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	1,2
A	
B	

## Observations

Stop check electric  
shutoff device at  
375 min/1

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⑥

# Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 5,9 e

1. Edition

En

VE 6/12 F 1100 R 159-7  
0 460 426 049

Overflow temperature 45° C

 superseded  
 company Cummins  
 engine 6 BT - 590 91 kW

DHK: 1 688 901 016/207 + 3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm  $\pm$  0,02 (0,04)

see VDT-W-460/

1. Settings	Rot speed rev/min	Settings	Charge air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	750	3,1-3,5 mm		
1.2 Supply pump pressure	750	3,6-4,2 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge-air pressure	900	68,5-69,5 cm <sup>3</sup> /1000 strokes		4,0 (4,5)
1.4 Idle regulation	375	22,0-28,0 cm <sup>3</sup> /1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1175	28,0-34,0 cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 97,0 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	-	-		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	500 1,3-2,1 (1,0-2,4)	750 (2,6-4,0)	1100 5,6-6,4 (5,3-6,7)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	500 2,5-3,1	1100 5,0-5,6	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)	1100 55-138 (40-153)	

## 2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge air press bar (kgf/cm <sup>2</sup> )
End stop	1250 1175 1100 900 750 500	max. 1,5 (26,0-36,0) 62,5-65,5 (61,0-67,0) (66,0-72,0) 69,0-73,0 (67,2-74,7) 66,0-70,0 (64,2-71,7)	
switch-off			
Idle stop	450 375 300 130 200	max. 1,5 (20,0-30,0) 48,0-56,0 (47,0-57,0) min. 97,0 max. 85,0	
End stop			

## 3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	1,2
A	
B	

## Observations

 Stop check electric  
 shutoff device at  
 375 min/1

2.4 Solenoid	max. cut-in voltage test voltage xxxx min. 10 V xxxx rated voltage 12V.
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# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP 001/4 CUM 5,9 m

1. Edition

En

VE 6/12 F 1100 R 159 - 9 Overflow temperature 45° C  
0 460 426 051

DHK: 1 688 901 016/207 + 3 bar

supercedes  
company Cummins  
engine 6 BT - 590

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm  $\pm$  0,02 (0,04)

see VDT-W-460/

1. Settings	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1 1 Timing device travel	750	3,1-3,5 mm		
1 2 Supply pump pressure	750	3,6-4,2 bar (kgf/cm <sup>2</sup> )		
1 3 Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge-air pressure	900	81,5-82,5 cm <sup>3</sup> /1000 strokes		4,0 (4,5)
1 4 Idle regulation	375	27,0-33,0 cm <sup>3</sup> /1000 strokes		3,5 (4,5)
1 5 Full-speed regulation	1175	37,0-43,0 cm <sup>3</sup> /1000 strokes		
1 6 Start	100	min. 97,0 cm <sup>3</sup> /1000 strokes		
1 7 Load-dependent port-closing	-	-		

## 2. Test Specifications

checking values in brackets ( )

1 1 Timing device	n = rev/min mm	500 1,3-2,1 (1,0-2,4)	750 (2,6-4,0)	1100 5,6-6,4 (5,3-6,7)
1 2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	500 2,5-3,1	1100 5,0-5,6	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)	1100 55-138 (40-153)	

## 2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )
End stop	1250 1175 1100 900 750 500	max. 1,5 (35,0-45,0) 77,0-80,0 (75,5-81,5) (79,0-85,0) 83,0-87,0 (81,2-88,7) 82,5-86,5 (80,7-88,2)	
switch-off			
Idle stop	450 375 300 150 240	max. 1,5 (25,0-35,0) 56,0-64,0 (55,0-65,0) min. 97,0 max. 85,0	
End stop			
2.4 Solenoid	max. cut-in voltage test voltage	xxx min. 10 V xxxxxx rated voltage 12V.	

## 3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	1,2
A	
B	

## Observations

Stop check electric  
shutoff device at  
375 min/1

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP 001/4 CUM 5,9 n

1. Edition

En

VE 6/12 F 1050 R 159-12 Overflow temperature 45° C  
0 460 426 055supersedes Cummins  
company 6 BT - 590 88,5 kW  
engine

DHK: 1 688 901 016/207 + 3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm  $\pm$  0,02 (0,04)

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	750	3,3-3,7 mm		
1.2 Supply-pump pressure	750	2,6-3,2 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge-air pressure	900	73,0-74,0 cm <sup>3</sup> /1000 strokes		4,0 (4,5)
1.4 Idle regulation	375	22,0-28,0 cm <sup>3</sup> /1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	115	26,0-34,0 cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 97,0 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	-	-		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	500 1,5-2,2 (1,1-2,5)	750 (2,8-4,2)	900 4,6-5,4 (4,3-5,7)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	500 2,6-3,2	900 4,4-5,0	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)	1050 55-138 (40-153)	

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	1175 1125 1050 900 750 500	max. 1,5 (25,0-35,0) 67,5-70,5 (66,0-72,0) (70,5-76,5) 74,0-78,0 (72,2-79,7) 85,5-89,5 (83,7-91,2)	
switch-off			
Idle stop	450 375 300 130 200	max. 1,5 (20,0-30,0) 55,0-63,0 (54,0-64,0) min. 97,0 max. 85,0	
2.4 Solenoid	max. cut-in voltage xxx min. 10 V rated voltage 12V.		

## 3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	1,2
A	
B	
Observations	Stopkontr. ELAB bei 375 min-1

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# Test Specifications

## Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 5,9 0

1. Edition

En

VE 6/12 F 1200 R 159-13  
0 460 426 056

Overflow temperature 45° C

supersedes  
company: Cummins  
engine 6 BT - 590

DHK: 1 688 901 016/207 + 3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm  $\pm$  0,02 (0,04)

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	750	2,8-3,2 mm		
1.2 Supply pump pressure	750	3,9-4,5 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		
Full-load delivery without charge-air pressure	1100	65,5-66,5 cm <sup>3</sup> /1000 strokes		4,0 (4,5)
1.4 Idle regulation	375	24,5-30,5 cm <sup>3</sup> /1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1250	34,5-40,5 cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 97,0 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	-	-		

### 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	500 1,1-1,9 (0,8-2,2)	750 (2,3-3,7)	1100 5,1-5,9 (4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	500 2,8-3,4		1100 5,3-5,9
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)		1200 55-138 (40-153)

### 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	1350 1250 1200 1100 750 400	max. 1,5 (32,5-42,5) 62,5-65,5 (61,0-67,0) (63,0-69,0) 71,0-75,0 (69,2-76,7) 66,0-70,0 (64,2-71,7)	
switch-off			
Idle stop	450 375 300 130 200	max. 1,5 (22,5-32,5) 49,0-57,0 (48,0-58,0) min. 97,0 max. 85,0	
2.4 Solenoid	max. cut-in voltage test voltage rated voltage	xxx min. 10 V xxxxxxx 12V.	

### 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	1,2
A	
B	

### Observations

Stop check electric  
shutoff device at  
375 min/1

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⑥

# Test Specifications Distributor-type Fuel-injection Pumps

46

 WPP 001/4 CUM 5,9 g1  
1. Edition

 VE 6712 F 1250 R 173-1  
0 460 426 046

Overflow temperature 45° C

DHK: 1 688 901 016/207 + 3 bar

En

 superseded  
company Cummins  
engine 6 BT - 590

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0,3

mm

± 0,02 (0,04)

see VDT-W-460/

## 1. Settings

	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1100	2,1-2,5	0,75	
1.2 Supply-pump pressure	1100	4,3-4,9	0,75	
1.3 Full-load delivery with charge-air pressure	1100	86,0-87,0	0,75	4,0 (4,5)
Full-load delivery without charge-air pressure	500	73,5-74,5	0	
1.4 Idle regulation	375	20,0-26,0	0	3,5 (4,5)
1.5 Full-speed regulation	1450	36,0-44,0	0,75	
1.6 Start	100	min. 97,0	0	
1.7 Load-dependent port-closing	-	-		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device LDA = 0,75 bar	n = rev/min mm	900 0,4-1,2 (0,1-1,5)	1100 (1,6-3,0)	1250 2,9-3,7 (2,6-4,0)
2.2 Supply pump LDA = 0,75 bar	n = rev/min bar (kgf/cm <sup>2</sup> )	500 2,0-2,6	1250 5,0-5,6	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)	1250 55-138 (40-153)	

## 2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )
End stop	1600	max. 1,5	0,75
	1450	(35,0-45,0)	0,75
	1250	82,0-85,0 (80,5-86,5)	0,75
	1100	(83,5-89,5)	0,75
	900	88,5-92,5 (86,7-94,2)	0,75
	750 *	80,0-81,0 (77,5-83,5)	0,3
	500	(70,2-77,7)	0
switch-off			
Idle stop	450	max. 1,5	
	375	(18,0-28,0)	
	300	35,0-43,0 (34,0-44,0)	
	130	min. 97,0	
	200	max. 85,0	
End stop			

## 2.4 Solenoid

 max. cut-in voltage xxx min. 10 V  
rated voltage 12V.

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	2,4
A	
B	

 Observations  
Stop check electric  
shutoff device at  
375 min/1

 Manifold-pressure  
compensator stroke  
= 4,5 mm

 Correction at the  
adjusting nut. (46)

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# Test Specifications

## Distributor-type Fuel-injection Pumps

WPP 001/4 CUM 3,9 b

1. Edition

En

VE 4/12 F 1400 R 182

Overflow temperature 45° C

0 460 424 015

supersedes  
company Cummins

engine 4 BT-390 78 kW

DHK 1 688 901 016 / 207 + 3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

Pre-stroke setting 0,3 mm  $\pm$  0,02 (0,04)

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1 1 Timing device travel	1100	1,4-1,8 mm	0,75	
1 2 Supply-pump pressure	1100	4,7-5,3 bar (kgf/cm <sup>2</sup> )	0,75	
1 3 Full-load delivery with charge-air pressure	1100	81,5-82,5 cm <sup>3</sup> /1000 strokes	0,75	4,0 (4,5)
Full-load delivery without charge-air pressure	500	64,0-65,0 cm <sup>3</sup> /1000 strokes	0	
1 4 Idle regulation	375	20,0-26,0 cm <sup>3</sup> /1000 strokes	0	3,5 (4,5)
1 5 Full-speed regulation	1600	22,0-28,0 cm <sup>3</sup> /1000 strokes	0,75	
1 6 Start	100	min. 97,0 cm <sup>3</sup> /1000 strokes	0	
1 7 Load-dependent port-closing	-	-		

## 2. Test Specifications

checking values in brackets ( )

2 1 Timing device LDA=0,75 bar	n = rev/min mm	1000 0,6-1,4 (0,3-1,7)	1100 (0,9-2,3)	1250 2,1-2,9 (1,8-3,2)
2 2 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm <sup>2</sup> )	500 2,1-2,7	1250 5,2-5,8	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)	1400 55-138 (40-153)	

2 3 Fuel deliveries				3. Dimensions	
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )	Designation	for assembly and adjustment mm
End stop	1750	max. 1,5	0,75	K	-
	1600	(20,0-30,0)	0,75	KF	5,2-5,5
	1475	54,5-62,5 (53,5-63,5)	0,75	MS	1,4-1,65
	1400	72,0-75,0 (70,5-76,5)	0,75	SVS	4,6
	1100	(79,0-85,0)	0,75		
	900	82,5-86,5 (80,7-88,2)	0,75		
	750*	77,5-78,5 (75,0-81,0)	0,3		
	500	64,0-65,0 (60,7-68,2)	0		
switch-off				A	
				B	
Idle stop	450	max. 1,5		Observations Stop check electric shutoff device at 375 min/1  Manifold-pressure compensator stroke = 7,5 mm Correction at the adjusting nut. (46)	
	375	(18,0-28,0)			
	300	35,0-43,0 (34,0-44,0)			
	130	min. 97,0			
End stop	200	max. 85,0			
2 4 Solenoid	max. cut-in voltage test voltage xxxxxxx	xxxx min. 10 V rated voltage 12V.			

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# Test Specifications

## Distributor-type Fuel-injection Pumps

WPP 001/4 CUM 3,9 b 1

1. Edition

En

VE 4/12 F 1250 R 182-1

Overflow temperature 45° C

0 460 424 016

supersedes  
company Cummins  
engine 4 BT-390

DHK: 1 688 901 016 / 207 + 3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm  $\pm$  0,02 (0,04)

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1 1 Timing device travel	1100	1,4-1,8 mm	0,75	
1 2 Supply-pump pressure	1100	4,7-5,3 bar (kgf/cm <sup>2</sup> )	0,75	
1 3 Full-load delivery with charge-air pressure	1100	81,5-82,5 cm <sup>3</sup> /1000 strokes	0,75	4,0 (4,5)
Full-load delivery without charge-air pressure	500	64,0-65,0 cm <sup>3</sup> /1000 strokes	0	
1 4 Idle regulation	375	20,0-26,0 cm <sup>3</sup> /1000 strokes	0	3,5 (4,5)
1 5 Full-speed regulation	1500	29,0-35,0 cm <sup>3</sup> /1000 strokes	0,75	
1 6 Start	100	min. 97,0 cm <sup>3</sup> /1000 strokes	0	
1 7 Load-dependent port-closing	-	-		

## 2. Test Specifications

checking values in brackets ( )

2 1 Timing device DA=0,75 bar	n = rev/min mm	1000 0,6-1,4 (0,3-1,7)	1100 (0,9-2,3)	1250 2,1-2,9 (1,8-3,2)
2 2 Supply pump DA=0,75 bar	n = rev/min bar (kgf/cm <sup>2</sup> )	500 2,1-2,7	1250 5,2-5,8	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)	1250 55-138 (40-153)	

## 2 3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )	Designation	for assembly and adjustment mm
End stop	1630	max. 1,5	0,75	K	-
	1500	(27,0-37,0)	0,75	KF	5,2-5,5
	1340	68,0-76,0 (67,0-77,0)	0,75	MS	1,4-1,65
	1250	76,5-79,5 (75,0-81,0)	0,75	SVS	4,6
	1100	(79,0-85,0)	0,75		
	900	82,5-86,5 (80,7-88,2)	0,75		
	750*	77,5-78,5 (75,0-81,0)	0,3		
	500	64,0-65,0 (60,7-68,2)	0		
switch-off				A	
				B	
Idle stop	450	max. 1,5		<b>Observations</b> Stop check electric shutoff device at 375 min/1  Manifold-pressure compensator stroke = 7.5 mm Correction at the adjusting nut. (46)	
	375	(18,0-28,0)			
	300	35,0-43,0 (34,0-44,0)			
End stop	130	min. 97,0			
	200	max. 85,0			
2.4 Solenoid	max. cut-in voltage    xxxx min. 10 V test voltage    rated voltage 12V.				

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# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 m

En 7. Edition

**Testoil-ISO 4113**

PES 6 A 80 C 410 RS2085X	EP/RSV 350-1300 A2B1005D (1)	..2C.. superseded by ..84
..D.. RS2085X	EP/RSV 350-1425 A2B1001D (2)	company Daimler-Benz
RS2085X	EP/RSV 350-1425 A2B1007D (3)	engine OM 352 - Unicog
RS2085X	EP/RSV 350-1400 A2B1052D (4)	(1+5) 84 PS
RS2085T	EP/RSV 350-1300 A2B1005D (5)	(2) 90 PS
		(3) 100 PS
		(4) 110 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,15 \pm 0,1$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,3	0,3			
	6 15	1,2 - 2,0 9,8 - 11,0				
200	9	1,8 - 2,6				

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

A2 C  
350-1300 A2 B1005 D (1)

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0	-	-	-	lose	350	6,9	1300	8,0+0,1
	x = 4,25						100	min. 17,5	500	9,4+0,1
ca. 48	7,0	1340-1350					350	6,8-7,0	700	9,2+0,2
⑤	4,0	1400-1430					620	6,80=2,0	950	8,3+0,3
	1575	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
(1) 1300	40,0 - 41,0 (38,5-42,5)	1340-1350	*	500	39,5 - 41,5 (37,5-43,5)	100	78,0 - 88,0 (75,0-91,0) = 14,5 - 14,9 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

72.84

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**B. Governor Settings**

350-1425 A2 B1001D (2)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 60	1425	16,0	without auxiliary spring			ca. 22	350	7,5	1400	0
	1500	11,5					200	19 - 21		
	1560	6,8					350	7,2-7,8		
⑤	1530	7,5-10,5	with auxiliary spring			500	5,1-6,6	900	0 - 0,2	
	1600	4,0-6,0				700	0,1-4,0			
	1820	0,3-1,0				940	0 - 1			400

The numbers denote the sequence of the tests

**C. Settings for Fuel Injection Pump with Fitted Governor**

② Full-load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) 1400	41,5 - 42,5 (40,0-44,0)	1455-1465	1000	37,5 - 39,5 (36,0-41,0)	-	-	-	-
			800	39,0-41,0 (37,5-42,5)				
			500	40,5-42,5 (39,0-44,0)				

Checking values in brackets

\* 1 mm less control rod travel than col 2

**Testoil-ISO 4113****B. Governor Settings**

350-1425 A2 B1007D (3)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 60	1425	16,0	without auxiliary spring			ca. 22	350	7,2	1400	0
	1500	11,4					200	19 - 21		
	1560	6,6					350	6,9-7,5		
	1520	8,0-10,9					600	2,3-4,6		
⑤	1650	2,1-4,4	with auxiliary spring				850	0 - 1,5	950	0,9-1,1
	1800	0,3-1,5								

The numbers denote the sequence of the tests

**C. Settings for Fuel Injection Pump with Fitted Governor**

② Full-load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(3) 1400	45,5 - 46,5 (44,0-48,0)	1420-1430	1000	41,5 - 43,5 (40,0-45,0)	-	-	-	-
			800	43,0-45,0 (41,5-46,5)				
			500	40,5-42,5 (39,0-44,0)				

Checking values in brackets

\* 1 mm less control rod travel than col 2

**B. Governor Settings**

..A2B 1052 D (4)

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	800	0,3-1,0	-	-	-	lose	350	6,9	1400	9,0-9,1
	x = 4,0						100	min.19,0	500	9,9+0,1
ca. 55	8,0	1440-1450					350	6,8-7,0	750	9,7-9,9
②a	4,0	1515-1545					650-710	= 2,0	950	9,3-9,6
	1680	0,3-1,7								

**C. Settings for Fuel Injection Pump with Fitted Governor**

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ ④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	3	rev/min	cm <sup>3</sup> /1000 strokes	5	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2		4			6	7	8	9
1400 (4)	52,0-53,0 (50,5-54,5)	1440-1450*	500	46,0-48,0 (44,0-50,0)		100	78,0-88,0 (75,0-91,0) = 14,2-14,6 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

Tested 150 4113

**B. Governor Settings**

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 51	1300	16,0	without auxiliary spring			ca. 19	350	8,0	1280	0
	1360	10,8							800	0,8-1,0
	1400	6,7					200	19-21		
ca. 49	1300	ca. 8,2	with auxiliary spring				350	7,7-8,2		
②a	1400	ca. 3,7					600	2,2-4,3		
	1520	0,3-1,0					780	0-1,0		

**C. Settings for Fuel Injection Pump with Fitted Governor**

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ ④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	3	rev/min	cm <sup>3</sup> /1000 strokes	5	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2		4			6	7	8	9
1290 (5)	40,0-41,0 (38,5-40,5)	1330-1340*	800	36,5-39,5 (35,0-41,0)		100	72,5-82,5	-	-
			500	36,5-39,0 (35,0-40,5)					

Checking values in brackets

\* 1 mm less control rod travel than col. 2

En

# Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 OMB 4,4 d

3. Edition

En

PES 4 A 90 D 410 RS 2195 EP/RSV 325-1050 A 4 B 1079 D

superseded 11.84  
company OMB  
engine CO 3..

Komb.-Nr. 0 400 874 198

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25  
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1000	10,4+0,1	7,5-7,6	0,3(0,45)			
325	7,4-7,6	-	-			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			④ Lower rated speed Control lever deflection in degrees 7 rev/min 8 Control rod travel mm 9			③ Torque control rev/min 10 Control rod travel mm 11	
ca. 62	1030	16,0	without auxiliary spring			ca. 26	325	6,5	1030	0
	1080	9,8					100	19 - 21		
	1120	3,0					325	6,2-6,8	300	0,2-0,8
②a	1050	ca. 9,8	with auxiliary spring				450	1,4-3,7		
	1120	ca. 3,0					600	0 - 1		
	1220	0,3-1,0								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop Test oil temp 40°C (104 °F) rev/min 1 cm <sup>3</sup> /1000 strokes 2		⑥ Rotational speed limit Note changed to ) rev/min 3	③a Fuel delivery characteristics rev/min 4 cm <sup>3</sup> /1000 strokes 5		Starting fuel delivery Idle ⑤ rev/min 6 cm <sup>3</sup> /1000 strokes 7		④a Idle stop rev/min 8 Control rod travel mm 9	
1050	74,5-75,5 (72,5-77,5)	1075-1090*	600	64,5-67,5 (62,5-69,5)	-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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11.84

H14

H14

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19.0 o

1. Edition

En

PE 12 A 85 D 610 LS 2241

RQV 300/1325 AB 938 DL

Komb.-Nr. 0 400 640 076

 supersedes  
company KHD  
engine F 12 L 413

1- 4- 9- 8- 5- 2- 11- 10- 3- 6- 7- 12

0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $\begin{matrix} 1,5-1,6 \\ (1,45-1,65) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1325	10,3+0,1	7,2-7,3	0,3(0,5)			
300	6,9-7,1	0,8-1,4	0,4			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1350	15,2-17,8	-	-	-	ca. 13	100 300	min.8,5 6,9-7,1	250 610 960 325	0,6-0,9 2,8-3,1 4,8-5,1 8,3
ca. 65	9,3 4,0 1550	1365-1375 1425-1455 0-1,0				350-520 (3a)				

Torque control travel a = 0,6 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤ Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
1325	72,0-73,0 (70,0-75,0)	1365-1375*	800	69,0-72,0 (66,5-74,5)	-	-	1325	10,3+0,1
			1000	66,5-69,5 (64,0-72,0)			800	10,9+0,1
							1000	10,5+0,2

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.84

H15

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4/5

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 r 2

2. Edition

En

**Testoil-ISO 4113**

PES 6 A 90 D 410 RS2293 EP/RSV 350-1500 A2B741L

supersedes **ER.77****A2C741L**company **Daimler-Benz**engine **OM 352****82kW/111PS**

Komb.-Nr. 0 400 876 271

Set idle-speed auxiliary spring at 2.0 mm control-rod travel,  
then 1/2 turn back.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25

(2,10-2,30)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> / 100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1450	3,9-9,0	5,3 - 5,4	0,3(0,45)			
350	7,4-7,6	0,9 - 1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	300	0,3-1,0				ca. 9	350	7,5	-	-
	$x = 0,75$						100	min. 19		
ca. 60	7,9	1500-1505					350	7,4-7,6		
⑤	4,0	1552-1575					365-395	= 2,0		
	1630	0,3 - 1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	3		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes mm RW	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
1450	52,5 - 53,5 (50,5 - 55,5)	1500-1505*	-	-	-	100	14,7-15,3	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.84

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 q 2

12. Edition

En

PES 6 A 90 D 410 RS 2293 RSV 350-1300 AOB 783 L  
Komb.-Nr. 0 400 876 255 AOC 783 L

superseded by 12.85  
company Daimler-Benz  
OM 352 A  
engine 110 kW (150 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-1,25  
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1300	11,4±0,1	7,6-7,7	0,3(0,45)			
350	7,3-7,5	1,0-1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0 x = 3,5	-	-	-	lose	350	7,4	1300	11,4-11,5
ca. 65	10,0	1340-1350					100	min. 19,0	800	11,7-11,8
2a	4,0	1460-1490					350	7,3-7,5	1050	11,5-11,7
	1600	0,3-1,7					570-630	=2,0		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit	3a Fuel delivery characteristics		Starting fuel delivery		4a Idle stop	
Test oil temp 40°C (104°F)					Idle			
rev/min 1	cm <sup>3</sup> /1000 strokes 2	Note changed to ) rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1300	0,7 bar 75,5-76,5 (73,5-78,5)	1340-1350*	LDA 500	0,7 bar 62,0-64,0 (59,5-66,5)	100	78,0-88,0 (75,0-91,0)	-	-
LDA 800	0,7 bar 67,0-69,0 (64,5-71,5)		LDA 500	0 bar 50,0-52,0 (47,5-54,5)		- 15,1 - 15,5 mm RW		

Checking values in brackets

\* 1 mm less control rod travel than col 2

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1.85

Testoil-ISO 4113

H17

H17

# D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 q<sub>2</sub>

- 2 -

Test at n 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement		Control rod travel	diminution difference
	Gauge pressure bar	Gauge pressure bar	bar	mm (1)	
PES 6 A .. RS 2293 +RSV..AOB 783 L	0,7				11,7-11,8
		0			10,7-10,8
		0,39			11,4-11,5
		0,28			10,9-11,1

Notes

(1) when n

rev/min and  
gauge pressure

bar ( maximum full load control rod travel)

Testing the hydraulic start-locking device

Locking at 0,40 - 0,50 bar

Unlocking at 0,15 - 0,25 bar



①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 s 5

2. Edition

En

PES 6 A 90 D 410 RS 2293  
Komb.-Nr. 0 400 846 365

ROV 300-1425 AB 947 L

superseded by 5.84  
Daimler-Benz  
company OM 352 A  
engine 124 kW

**Testoil-ISO 4113**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,15-2,25</sup>  
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	10,8+0,1	7,4-7,5	0,3(0,45)			
300	6,8-7,0	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	16,0-19,0	-	-	-	ca. 12	100	min. 7,3	250	0,9-1,1
ca. 66	9,8	1435-1445					300	15,7-5,9	640	3,3-3,7
	4,0	1530-1560					570-630	= 2,0	1030	5,9-6,2
	1650	0 - 1,0				300-500	750 max.	1,0	1425	8,7

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed ②b limitation intermediate speed 4a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤ travel Control rod travel mm	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	mm 9
LDA 1375	0,5 bar 74,0-75,0 (72,0-77,0)	1435-1445*  700	LDA 500	0 bar 54,0-56,0 (52,0-58,0)	100	71,0-81,0 (68,0-84,0) = 13,7-14,3 mm kgf	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2  
12.84

H19

# D. Adjustment Test for Manifold Pressure Compensator

MB 5,7s5

-2-

Test at n 1375 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting		Measurement		Control rod travel: diminution difference	
	Gauge pressure	bar	Gauge pressure	bar	mm	(1)
PES 6 A..RS 2293 + RQV..AB 947 L	0,50		0,15 0			10,8 - 10,9 10,4-10,6 10,2-10,3

## Notes

(1) when n

rev/min and  
gauge pressure -

bar ( - maximum full load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 s 7

2. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1425 AB 949 L

Komb.-Nr. 0 400 846 367

supersedes 5.84

company Daimler-Benz

engine OM 352 A

124 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,15-2,25}{(2,10-2,30)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	10,8+0,1	7,4-7,5	0,3(0,45)			
300	6,8-7,0	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	16,0-19,0	-	-	-	ca. 12	100	min. 7,3	250	0,9-1,1
ca. 66	9,8 4,0 1650	1435-1445 1530-1560 0-1,0				300-500	300	5,7-5,9 570-630 = 2,0 750 max. 1,0	640	3,3-3,7 5,9-6,2 8,7

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1375	0,7 bar 74,0-75,0 (72,0-77,0)	1435-1445*  700	LDA 500	0 bar 54,0-56,0 (52,0-58,0)	100	71,0-81,0 (68,0-84,0) = 13,7-14,3 mm R/I	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.84

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H21

12.84

# D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 s 7

- 2 -

Test at n = 1375 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm (1)
PES6A..RS2293 + RQV..AB949L	0,70		10,8 - 10,9
		0,20	10,4 - 10,6
		0	10,2 - 10,3

Notes

(1) when n

rev/min and  
gauge pressure -

bar ( = maximum full load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x 1

6. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 1138 L

Komb.-Nr. 0 400 846 474

superse 04

company Daimler-Benz

engine

OM 352 A

124 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25

(2,1 - 2,3)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,5 - 7,6	0,3(0,45)			
300	7,6-7,8	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	16,0-19,4	-	-	-	ca. 15	100	min. 9,2	250	0,9-1,1
							300	7,6-7,8	600	3,1-3,4
ca. 61	10,3	1435-1445				350-475			1000	5,5-5,7
	4,0	1550-1580							1400	8,2
	1650	0 - 1,0								

Torque control travel a = -- mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	cm <sup>3</sup> /1000 strokes 4	rev/min 5	cm <sup>3</sup> /1000 strokes 6	rev/min 7	cm <sup>3</sup> /1000 strokes 8	rev/min 9	mm 10
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445 *	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	71,0-81,0 (68,0-84,0) = 14,3-14,7 mm RW	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.84

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Test oil: 30 4713

H23

H23

# D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 x 1 - 2 -

Test at n = 1 375 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm (1)	
PES 6 A..RS 2293 mit ..AB 1138 L	0,70		11,3 - 11,4	
		0	11,0 - 11,1	
		0,28	11,1 - 11,2	

## Notes

(1) when n

rev/min and  
gauge pressure =

bar ( = maximum full load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x

8. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 1140 L

Komb.-Nr. 0 400 846 475

superseded 5.84

company Daimler-Benz

engine OM 352 A

124,0 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25  
(2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1375	11,3+0,1	7,5-7,6	0,3(0,45)			
300	7,6-7,8	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1420	16,0-19,4	-	-	-	ca. 15	100	min. 9,2	250	0,9-1,1
ca. 61	10,3	1435-1445					300	7,6-7,8	600	3,1-3,4
	4,0	1550-1580							950	5,3-5,5
	1650	0-1,0				350-475			1400	8,2
						③a				

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445*  700	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	71,0-81,0 (68,0-84,0) = 14,3-14,7 mm RV	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.84

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# D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 x

- 2 -

Test at n = 1375 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure bar	Gauge pressure ± bar	mm (1)	
PES6A..RS2293 + RQV..AB1140L	0,70		11,3 - 11,4	
		0	11,0 - 11,1	
		0,28	11,1 - 11,2	

## Notes

(1) when n = rev/min and gauge pressure = bar ( : maximum full-load control rod travel)



①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x 7

2. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 1141 L

supersedes 5.84

Komb.-Nr. 0 400 846 476

company Daimler-Benz

engine OM 352 A

124,0 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $\frac{2,15-2,25}{(2,10-2,30)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 stroke 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,5-7,6	0,3(0,45)			
300	7,6-7,8	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	16,0-19,4	-	-	-	ca. 15	100 300	min. 9,2 7,6-7,8	250 600 950 1400	0,9-1,1 3,1-3,4 5,3-5,5 8,2
ca. 61	10,3 4,0 1650	1435-1445 1550-1580 0-1,0				350-475 (3a)				

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445* 700	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	71,0-81,0 (68,0-84,0) = 14,3-14,7 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

1.85

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# D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 x 7

- 2 -

Test at n = 1375 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure : bar	Gauge pressure : bar	mm (1)	
PES6A..RS2293 + RQV..AB1141L	0,70		11,3 - 11,4	
		0	11,0 - 11,1	
		0,28	11,1 - 11,2	

## Notes

(1) when n = rev/min and gauge pressure = bar ( : maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MWM 6,2 c

4. Edition

**Testoil-ISO 4113**
**PES 6 A 90 D 320/3 RS2393  
RS2464**
**EP/RSV 300-1000 A7 B529DR  
325-1500 A2 B529 DR  
C**
**supersedes 5.79  
company M W M  
engine TD 226-6**

Starting from FD 821, the supplementary idle spring has been changed from 1 424 641 000 to ... 001. New specifications enclosed.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke **2,15 + 0,1** mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,1 - 5,5	0,4			
	6	1,6 - 2,6				
200	9	1,9 - 2,9				

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

RSV 300-1000

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 68	1000 1050 1100	16,0 8,5 2,4	without auxiliary spring			ca. 28	300	5,5	-	-
ca. 67 ⑤	1030 1070 1120	8,0-9,0 2,0-4,0 0,3-1,0					100 300 450	19 - 21 5,7-6,3 0 - 1		
			with auxiliary spring							

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
Instructions P. 3-4									

Checking values in brackets

\* 1 mm less control rod travel than col. 2

## B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.58	1500	16,0	without auxiliary spring			ca.20	325	5,5	-	-
	1580	9,0					100	19 - 21		
	1630	4,2					325	5,7-6,3		
							420	1,4-3,4		
ca.56	1530	8,0-9,0	with auxiliary spring				520	0 - 1		
	1580	3,0-4,0								
⑤	1620	0,3-1,0								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
Instructions P. 3-4				⑥a					

Checking values in brackets

\* 1 mm less control rod travel than col 2

## B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
⑤										

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	

Checking values in brackets

\* 1 mm less control rod travel than col 2

### C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
F 150	PS / 2500 min <sup>-1</sup>							
1250	87,0-89,0	1270	800	84,0-87,0				
B 143	PS / 2500 min <sup>-1</sup>							
1250	84,0-86,0	1270	800	79,5-82,5				
F 148	PS / 2400 min <sup>-1</sup>							
1200	86,0-88,0	1220	800	84,0-87,0				
B 141	PS / 2400 min <sup>-1</sup>							
1200	82,0-84,0	1220	800	79,5-82,5				
F 146	PS / 2300 min <sup>-1</sup>							
1150	84,0-86,0	1170	800	84,0-87,0				
B 139	PS / 2300 min <sup>-1</sup>							
1150	81,0-83,0	1170	800	79,5-82,5				
A 125	PS / 2300 min <sup>-1</sup>							
1140	80,0-83,0	-----	1150	74,0-76,0				
F 143	PS / 2200 min <sup>-1</sup>							
1100	84,0 - 86,0		1120	84,0-87,0				
B 137	PS / 2200 min <sup>-1</sup>							
1100	81,0-83,0	1120	800	79,5-82,5				
A 134	PS / 2200 min <sup>-1</sup>							
1090	80,5-83,5	-----	1100	74,0-76,0				
F 140	PS / 2100 min <sup>-1</sup>							
1050	85,0-87,0	1070	800	84,0-87,0				
B 134	PS / 2100 min <sup>-1</sup>							
1050	82,0-84,0	1070	800	79,5-82,5				
A 122	PS / 2100 min <sup>-1</sup>							
1040	80,5-83,5	-----	1050	76,0-78,0				
F 135	PS / 2000 min <sup>-1</sup>							
1000	86,0-88,0	1020	800	84,0-87,0				
B 130	PS / 2000 min <sup>-1</sup>							
1000	81,0-83,0	1020	800	79,5-82,5				
A 119	PS / 2000 min <sup>-1</sup>							
990	80,5-83,5	-----	1000	73,0-75,0				
B 123	PS / 1800 min <sup>-1</sup>							
900	82,0-84,0	910	750	78,5-81,5				
A 112	PS / 1800 min <sup>-1</sup>							
890	89,5-92,5	-----	900	75,0-77,0				
B 110	PS / 1500 min <sup>-1</sup>							
750	86,0-88,0	760	650	74,0-77,0				

-A 100 PS See page 4

Checking values in brackets

\* 1 mm less control rod travel than col 2

①

Testoil-ISO 4113

A 100	BHP at 1500 min/1		
740	87.5 - 90.5	----- 750	86.0 - 88.0

The nameplate described on MWM 1.5 a has recently been expanded - in columns n = rotational speed and Q = ~~full-load~~ fuel delivery - to include two rotational speeds and two fuel deliveries, to enable more exact adjustment in the case of regulators with torque control.

Accordingly - in deviation from VDT-WPP 001/4, 1st addendum, Adjustment of the Regulator and the Pump - the following points will apply:

- (1) Adjustment of the control spring: remains.
- (2) Adjustment of the full-load fuel delivery: in accordance with nameplate, n = (1st rotational speed) and Q = (1st fuel delivery), or according to Sect. C, Columns 1-2.
- (3) Adjustment of the torque control: is adjusted until the control-rod travel is changed as indicated in (2), or according to the new nameplate, until the 2nd fuel delivery is obtained at the 2nd rotational speed; or accordance with Section C, Columns 4-5.
- (6) Start of speed regulation: is readjusted according to the nameplate n = (1st rotational speed + 20 min/1) or Column 3.  
However, for A-power output: readjust until the fuel delivery as shown in Columns 4-5 has been attained.

New pumps from the warehouse in Stuttgart do not have the spring retainer! For that reason, use the old spring retainers, or order new ones from MWM in accordance with the old nameplate!

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 8,3 1 4

1. Edition

En

PE 6 A 90 D 410 RS 2524/Z RSV 250-900 A 7 B 2124 L

Komb.-Nr. 0 400 676 165/Z

Values apply to fuel-injection test tubing

1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes

company DAF

engine DH 825 (1800)

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,3-2,4}{(2,25-2,45)}$  mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
750	9,4-9,5	7,9-8,1	0,4 (0,6)			
250	6,3-6,5	1,9-2,5	0,2 (0,55)			

Port closing difference = 1,1-1,2 mm between control-rod travel 9 mm and control-rod travel 21 mm

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 16	250	6,4	-	-
	X =						100	min. 19		
ca. 49	8,4**	910-920					260-320	2,0		
2a	4,0	925-945								
	1100	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

<b>(2b)</b> Full-load stop		<b>(6)</b> Rotational speed limit		<b>(3a)</b> Fuel delivery characteristics		Starting fuel delivery		<b>(5)</b>		<b>(4a)</b> Idle stop	
Test oil temp 40°C (104°F)		Note changed to )				Idle					
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm		
1	2	3		4	5	6	7	8	9		
750	78,5-80,5 (77,0-82,0)	910-920*	-	-	-	100	19,5-21,0 mm RW	250	6,4		
** Speed difference between control-rod travel 8,4 mm and 4,0 mm = 15-25 min/1											

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.84

**BOSCH**

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Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps and Governors

40

WPP001/4 KHD 1 & 7

2. Edition

En

Testoil-ISO 4113

PES5A80D410/3RS2526 RSV 325-1200A8B2147L  
A8C2147 L  
1-3-5-4-2 je 72° ±0,5° (±0,75°)  
Komb.-Nr. 0 400 865 024

supersedes 9.82  
company KHD  
engine F5L912  
65 kW (88 PS)  
Schlepper DX 90-S 22

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke		mm (from BDC)					
1,9-2,0 (1,85-2,05)							
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)	
rev/min	mm	cm <sup>3</sup> /100 strokes	cm <sup>3</sup> /100 strokes	mm	cm <sup>3</sup> /100 strokes	mm	
1	2	3	4	2	3	6	
1200	11,5+0,1	6,0 - 6,1	0,2(0,35)				
325	8,9-9,1	0,9 - 1,5	0,2(0,3)				

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	800	0,3-1,0	-	-	-	ca. 19	325	8,5	1200	11,5+0,1
		X = 4,5					325	8,9-9,1	500	12,1+0,1
ca. 56	1240-1250 = 10,5						465-525 = 2,0		950	11,8+0,2
⑤	1285-1315 = 4,0									
	1450 = 0,3-1,7									

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	5	4	5	6	7	8	9
1200	60,0 - 61,0 (58,5 - 62,5)	1240-1250*	800	58,0 - 59,0 (56,5 - 60,5)	100	19,0-21,0 mm RW		-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

1.85



# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 6.1 d

4. Edition

En

supersedes 4.84

company

K H D

engine

F6 L912

74 kW (102 PS)

bei 2300 min<sup>-1</sup>

Schlepper DX 110

S 31

PES 6 A 80 D410/3 RS2527 EP/RSV 325-1150 A8 B2014DL

Komb.-Nr. 0 400 866 084

A8 C2014 L

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 1,90-2,00  
(1,35-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1150	11,8 +0,1	5,6 - 5,7	0,2(0,35)			
325	8,9-9,1	0,8 - 1,2	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	800	0,3-1,0				ca. 23	325	8,5	1150	11,8+0,1
							100	min. 19,5	950	12,0+0,2
							325	8,9-9,1	775	12,5+0,2
							390-450	= 2,0	450	12,5+0,2
ca. 58 ⑤	10,8 4,0 1350	1190-1200 1235-1265 0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to rev/min						Control rod travel mm	
rev/min	cm <sup>3</sup> /1000 strokes	3		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	9
1	2			4	5	6	7	8	
1150	56,0 - 57,0 (54,5 - 58,5)	1190-1200 *		775	54,0 - 56,0 (52,0 - 58,0)	-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

1.85

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,1p14

3. Edition

En

PES 6 A 95 D 410 LS 2542  
Komb.-Nr. 0 400 846 424

RQ 250/1100 AB 965 DL

supersedes 10.83

company MAN

engine D2566 M/MF  
177 kW (240 PS)

**Testoil-ISO 4113**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{1,5-1,6}{(1,45-1,65)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,1	12,5-12,7	0,3(0,6)			
250	6,0-6,2	1,1 - 1,7	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Test specifications Control rod travel mm 4				Test specifications Control rod travel mm 10				Control rod travel mm 12	
600	15,6-16,4	600	16,0	11,0	1145-1160	250	6,1	100	min. 7,6	-	-
				4,0	1185-1215			250	6,0-6,2		
				1300	0- 1,0			360-420	= 2,0		
								500	max. 1,0		

Torque-control travel on flyweight assembly dimension a = 0 mm

Speed regulation At 1145-1160 min<sup>-1</sup>

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes / mm 7	
1100	124,5-126,5 (122,5-128,5)	-		750	110,5-113,5 (108,0-116,0)	100	121,5-131,5 (118,5-134,5)
				500	max. 113,5 (max. 116,0)		= 14,0 - 14,6 mm RW

Checking values in brackets

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p 1

7. Edition

En

**Testoil-ISO 4113**

PES 6 A 95 D 410 LS 2542 Z RQV 250-1100 AB 1038 DL (1)  
 .. LS 2542 RQ 250/1100 AB 1049 DL (2)  
 .. IS 2542 RQ 250/1050 AB 965 DL (3)  
 Komb.-Nr. 0 400 846 425 (1) MAN-Nr. 1-7960  
 0 400 846 427 (2) MAN-Nr. 1-7946  
 0 400 846 418 (3) MAN-Nr. 1-7941

supersedes 7.84

company: MAN

engine D2566

(1) MSFV-162 kW/2200 min/1

(2) MFOR-162 kW/2200 min/1

(3) MF -172 KW/2100 min/1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 1,50-1,60 mm (from BDC) Zyl. 6  
 (1,45-1,65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,3+0,1	11,3 - 11,5	0,3(0,6)	12,0-12,1	12,9 - 13,1	n 1050
250	5,9-6,1	0,8 - 1,5	0,3(0,5)	6,5-6,7	1,1 - 1,7	

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

(1)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1140	14,4-17,6	-	-	-	ca. 13	100	min. 7,5	200	0,5-1,2
							250	5,9-6,1	700	4,3-4,6
							320-380	=2,0	1140	8,3
							450	0-1		
ca. 42	10,3	1140-1150				③a				
	4,0	1175-1205								
	1300	0 - 1,0								

Torque control travel a = 0,35 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9+0,1
1100	112,5-114,5 (110,5-116,5)	1140-1150*	700	102,5-105,5 (100,5-107,5)	100	124,0-134,0	1100	11,3
			500	max. 106,5 (108,5)	250	6,0 mm RW	700	11,7
						100-170 (80-190)	500	11,7

Checking values in brackets

\* 1 mm less control rod travel than col 2

12.34

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J13

J13

## B. Governor Settings

(2)

MAN 11,1 p 1

- 2 - (2)

Checking of slider PRG check		Full load speed regulation		Idle speed regulation		Torque control	
①		④		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8
600	15,6-16,4	600	16,0	10,2	1145-1160	250	6,0
				4,0	1185-1215	100	min. 7,5
						250	5,9-6,1
						360-400	=2,0
						1100	11,2-11,3
						845	11,2-11,5
						750	11,4-11,6
						600	11,6-11,7

Torque control travel on flyweight assembly dimension a 0,3 mm

Speed regulation At

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8
(2)							
1100	112,5 - 114,5 (110,5 - 116,5)			700	102,5 - 105,5 (100,5 - 107,5)	100	125,0-135,0 (122,0-138,0) = 15,0-16,0mm RW
				500	max. 106,5 (max. 108,5)	250	6,0 mm RW

Checking values in brackets

## B. Governor Settings

(3)

Checking of slider PRG check		Full load speed regulation		Idle speed regulation		Torque control	
①		④		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8
600	15,6-16,4	600	16,0	11,0	1095-1110	250	6,6
				4,0	1145-1170	100	min. 8,1
						250	6,5-6,7
						375-415	=2,0
						450	0 - 1
1250	0 - 1						

Torque control travel on flyweight assembly dimension a 0 mm

Speed regulation At

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8
(3)							
1050	127,5 - 129,5 (125,5 - 131,5)			500	max. 113,5 (115,5)	100	124,0 - 134,0 6,0 mm RW

En Checking values in brackets

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p 20

3. Edition

En

PES 6 A 95 D 410 LS 2542  
Komo.-Nr. 0 400 846 516

RQV 250-1100 AB 1177 DL

superseded 5.84  
company MAN  
D 2566 M/NF  
engine 177 kW/2200 min<sup>-1</sup>  
MAN-Nr. 2-7440

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 1,5-1,6 \\ (1,45-1,65) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,1	12,5 - 12,7	0,35(0,6)			
250	5,3-6,1	0,9-1,4	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1115	15,2-17,8	-	-	-	ca. 13	100	min. 8,2	200	0,7-0,9
ca. 47	11,0	1140-1150					250	16,7-6,9	500	3,4-3,8
	4,0	1180-1210					335-395=2,0		800	4,9-5,4
	1300	0-1,0							1100	7,6

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b intermediate speed	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	124,5-126,5 (122,5-128,5)	1140-1150*	750	113,0-116,0 (110,5-118,5 107,5-113,5 105,0-116,0)	100	121,5-131,5 (118,5-134,5 = 14,7-15,3 mm R <sub>W</sub> )	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

1.85

J15

JAS

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# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 6,2 1

3. Edition

En

**Testoil-ISO 4113**

PE 6 A 85 D 320 RS2546 RQ 250/1200 AB1023R

Komb.-Nr. 0 400 646 263

supersede 9.82

company D A F

engine DD 615

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $\frac{2,15-2,25}{(2,10-2,30)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9,5-9,6	5,1 - 5,2	0,3(0,45)			
250	5,9-6,1	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Test specifications Control rod travel mm 4		rev/min 5		Setting point rev/min 7		Test specifications Control rod travel mm 9		rev/min 10		Torque control rev/min 11		Control rod travel mm 12	
550		19,2-20,8		550		20,0		8,5	1245-1260	250		6,0		100		min.7,5	-	-	
								4,0	1310-1340					250		5,9-6,1			
VH		max. = 46°						1450	0 - 1,0					305-345		=2,0			
														450		0 - 1			

 Torque-control travel on flyweight assembly dimension a =  mm
Speed regulation: Al  $1245 - 1260 \text{ min}^{-1}$ 

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7	
1000	50,5 - 51,5 (48,5 - 53,5)	-	-	-	-	100	19,5-21,0 mm RW		

Checking values in brackets

②

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 6,2 k

7. Edition

En

PE 6 A 85 D 320 RS 2546

RQ 250/1300 AB 1023 R

EP/RSV 250-1300 A 1 B 2025 R

Supersede 8.82

DAF

DF 615

engne

Komb.-Nr. 0 400 646 255 (1)

0 400 676 154 (2)

Specifications apply to test tubing 1 680 750 015 1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25

(2,10-1,30)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1000	10,4+0,1	5,6 - 5,7	0,3(0,45)			
250	8,1-8,3	1,5 - 2,0	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

Port closing difference between control rod travel 9 mm

## B. Governor Settings

and max. = 3 - 4° camshaft

Checking of slider		Full load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	19,6-20,4 VH max. =	550 46°	20,0	9,4 4,0 1500	1345-1360 1425-1455 0 - 1,0	250	6,5	100 250 300-370 400	min. 9,7 8,1-8,3 = 2,0 max. 1,0	-	-

Torque control travel  
on flyweight assembly dimension a

mm

Speed regulation A1

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /100 strokes 7
1000	56,0-57,0 (54,0-59,0)	-	-	-	100	115,0-125,0 (112,0-128,0) = 19,5-21,0 mmRV

Checking values in brackets

12.84

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# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 6,2 m

7. Edition

En

**Testoil-ISO 4113**

PE 6 A 85 D 320 RS 2546 RSV 250-750 A 7 B 2125 R  
Komb.-Nr. 0 400 676 168

supersedes 91 R4  
company DAF  
engine DD 575 DF

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,15-2,25</sup>  
(2,1 - 2,3) mm (from BDC) RW = 9 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,1+0,1	62 - 64	0,3(0,45)			
250	8,4-8,6	0,9 - 1,5	0,25(0,45)			
Port closing difference between control-rod travel 9mm and max. = 3,5 - 4,5° camshaft						

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
lose	800	0,3 - 1,0	-	-	-	ca. 16	250	8,5	-	-
	x =	4,5					250	8,4-8,6		
⑤ 0.40	11,1	770-780					260-320	2,0		
	4,0	785-805						••		
	955	0,3-1,7								

The numbers denote the sequence of the tests. Set idle-speed auxiliary spring at 2.0 mm control-rod travel, then 1/2 turn back.

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
750	61,5 - 63,5 (59,5 - 65,5)	770-780*	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 m 2

1. Edition

En

PE 6 A 85 D 320 RS 2546/x RSV 250-900 A 7 B 2125 R

Komb.-Nr. 0 400 676 168/x

Specifications apply to test tubing 1 680 750 015

supersedes

company DAF

engine DF 615 (1800)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$  mm (from BDC bei RW = 9,0 - 12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
750	12,6+0,2	6,7 - 6,9	0,3(0,5)			
250	8,4-8,6	0,9 - 1,5	0,2(0,45)			

Port closing difference = 0,6 - 0,7 mm between control-rod travel 9 mm and control-rod travel 21 mm.

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			④ Lower rated speed Control lever deflection in degrees 7		③ Torque control Control rod travel mm 10 11	
Control rod travel mm 2	Control rod travel mm rev/min 3					rev/min 8	Control rod travel mm 9		
lose	700	0,3-1,0	-	-	-	ca. 16	250	8,5	-
	x =						260-320	2,0	
ca. 48	11,6**	910-920							
②a	4,0	925-945							
	1100	0,3-1,7							

The numbers denote the sequence of the tests  
\*\* Speed difference between control-rod travel 11,6 mm and 4,0 mm = 15-25 min/1

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop Test oil temp 40°C (104°F) rev/min 1		⑥ Rotational speed limit Note changed to ) rev/min 3		③a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		④a Idle stop Control rod travel mm 8	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes 7		rev/min 9	
750	67,0-69,0 (65,5-70,5)	910-920*	-	-	-	100	19,5-21,0 mm RW	250	8,5

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.84

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J20

J20

# Test Specifications Fuel Injection Pumps **(1A)** and Governors

**40**

WPP 001/4 DAF 6,2 m 1

1. Edition

En

PE 6 A 85 D 320 RS 2546/y RSV 250-750 A 7 B 2125 R  
Komb.-Nr. 0 400 676 168/y

supersedes

company DAF

engine DF 615 (1500)

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,15-2,25}{(2,10-2,30)}$  mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
750	2,6+0,2	6,7 - 6,9	0,3(0,5)			
250	8,4-8,6	0,9 - 1,5	0,2(0,45)			

Port closing difference = 0,6 - 0,7 mm between control-rod travel 9 mm and control-rod travel 21 mm.

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed		3 Torque control		
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
lose	700	0,3-1,0	-	-	-	ca. 16	250	8,5	-	-
	x =						260-320	2,0		
ca. 40	11,6**	770-780								
2a	4,0	785-805								
	955	0,3-1,7								

The numbers denote the sequence of the tests

\*\* Speed difference between control-rod travel 11,6 mm and 4,0 mm = 15-25 min/1

## C. Settings for Fuel Injection Pump with Fitted Governor

<b>(2b)</b> Full load stop		<b>(6)</b> Rotational speed limit	<b>(3a)</b> Fuel delivery characteristics		Starting fuel delivery <b>(5)</b>		<b>(4a)</b> Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to ) rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
rev/min 1	cm <sup>3</sup> /1000 strokes 2							
750	67,0 - 69,0 (65,5-70,5)	770-780*	-	-			250	8,5
					100	19,5-21,0 mm RW		

Checking values in brackets

\* 1 mm less control rod travel than col 2

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# Test Specifications Fuel Injection Pumps and Governors

IIPP 001/4 DAF 6,2i2

3. Edition

En

supersedes 82

company DAF

engine DT 615

**Testoil-ISO 4113**

 PE 6 A 90 D 320 RS 2547 RSV 250-1200 A5B 2133 R  
 Komb.-Nr. 0 400 676 169 A5C 2133 R

Specifications apply to test tubing 1 680 750 015 !

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke <sup>2,2-2,3</sup>  
 (2,15-2,35) mm (from B10) <sup>8,0</sup> mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	10,8+0,1	7,2 - 7,3	0,3(0,45)			
250	5,9-6,1	4,9 - 1,3	0,25(0,45)			

Port closing difference between control-rod travel 9 mm and max. = 2,5-3,5° camshaft

 Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
100%	800	0,3-1,0	-	-	-	ca. 22	250	5,5	1000	10,8+0,1
	x =	3,25							400	11,0+0,1
ca. 54	9,8	1240-1250					250	5,9-6,1	300	11,2+0,5
⑤	4,0	1310-1340					585-645	2,0		
	1490	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
LDA 1000	0,7 bar 71,5 - 72,5 (69,5 - 74,5)	1240-1250*	LDA 600	0 bar 51,5 - 53,5 (49,0 - 56,0)	100	135,0-145,0 (132,0-148,0)	0 -	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

# D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 1000 rev/min decreasing pressure - in bar gauge pressure DAF 6,2 i 2  
increasing

Pump/governor	Setting	Measurement		Control rod travel	diminution difference
	Gauge pressure bar	Gauge pressure bar	mm (1)		
.. RS 2547 with RSV .. A5B 2133 R	0,7		10,8 - 10,9		
		0,25	10,6 - 10,7		
		0,21	10,1 - 10,4		
		0	9,8 - 10,0		

Notes

(1) when n = rev/min and gauge pressure bar (maximum full load control rod travel)

Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps and Governors

1A

WPP 001/4 DAF 8,3 n 4

1. Edition

En

PE 6 A 95 D 410 RS 2575/x RSV 250-900 A 7 B 2124 L

Komb.-Nr. 0 400 676 172/x

Specifications apply to test tubing 1 680 750 015

superseded  
company DAF

engine DHTD 825 (1800)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,0 - 2,1$  mm (from BDC) bei RW = 9,0 - 12,0 mm  
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
750	13,2+0,1	11,1 - 11,3	0,4(0,6)			
250	6,0-6,2	0,7 - 1,3	0,2(0,55)			

Port closing difference = 0,7 - 0,8 mm between control-rod travel 9 mm and control-rod travel 21 mm.

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	700	0,3-1,0	-	-	-	ca. 16	250	6,1	-	-
	x =						260-320	2,0		
ca. 48	12,2 **	910-920								
2a	4,0	925-945								
	1100	0,3-1,7								

The numbers denote the sequence of the tests

\*\* Speed difference between control-rod travel 12,2 mm and 4,0 mm = 15-25 min/1

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	3	rev/min	cm <sup>3</sup> /1000 strokes	5	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2		4	5		6	7	8	9
750	110,5-112,5 (108,5-114,5)	910-920*	-	-		100	19,5-21,0 mm RW	250	13,25

Checking values in brackets

\* 1 mm less control rod travel than col. 2

10.84

# Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 8,3 n 3

1. Edition

En

PE 6 A 95 D 410 RS 2575/Z RSV 250-900 A 7 B 2124 L

Komb.-Nr. 0 400 676 166/Z

Specifications apply to test tubing 1 680 750 015

supersedes

company

engine

DAF

DU 825 (1800)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) bei RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
750	12,5-12,6	10,1-10,3	0,4(0,6)			
250	6,0-6,2	0,7-1,3	0,2(0,55)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Port closing difference = 0,7 - 0,8 mm between control-rod travel 9 mm and control-rod travel 21 mm.

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	700	0,3-1,0	-	-	-	ca. 15	250	6,1	-	-
	X =						260-320	2,0		
ca. 48	11,5	910-920								
2a	4,0 **	925-945								
	1100	0,3-1,7								

The numbers denote the sequence of the tests \*\* Speed difference between control-rod travel 11,5 mm and 4,0 mm = 15-25 min/1

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to 1 rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	3	rev/min	cm <sup>3</sup> /1000 strokes	5	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2		4			6	7	8	9
750	100,5-102,5 (98,5-104,5)	910-920*	-	-	-	100	19,5-21,0 mm RW	250	6,1

Checking values in brackets

\* 1 mm less control rod travel than col 2

10.84

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 n 1

1. Edition

En

PE 6 A 90 D 320 RS 2577/z RSV 250-900 A 7 B 2125 R

Komb.-Nr. 0 400 676 167/z

supersedes

company DAF

engine DT 615 (1800)

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,2-2,3 \\ (2,15-2,35) \end{matrix}$  mm (from BDC) bei RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
750	11,0-11,1	7,5-7,7	0,4 (0,5)			
250	5,9-6,1	0,8-1,4	0,2 (0,45)			

Port closing difference = 0,7 - 0,8 mm between control-rod travel 9 mm and control-rod travel 21 mm.

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	700	0,3-1,0	-	-	-	ca. 15	250	6,0	-	-
	x =						250-320	2,0		
ca. 45	10,0**	910-920					100	min. 19,0		
2a	4,0	925-945								
	1100	0,3-1,7								

The numbers denote the sequence of the tests

\*\* Speed difference between control-rod travel 10,0 mm and 4,0 mm = 15-25 min/1

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min				Idle			
rev/min	cm <sup>3</sup> /1000 strokes	3		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
750	75,0-77,0 (73,5-78,5)	910-920*	-	-	-	100	19,5-21,0 mm RW	250	6,0

Checking values in brackets

\* 1 mm less control rod travel than col 2

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10.84

K2

K2



①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 k 3

6. Edition

En

PES 6 A 85 D 410/3 RS 2592 RQV 300-1250 AB 1188 L

Komb.-Nr. 0 400 836 028

superseded 12.84

company: KHD

engine: BF 6 L 913  
118 kW/2500 min<sup>-1</sup>

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,2 - 2,3$   
(2,15-2,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,0+0,1	8,9 - 9,0	0,3(0,5)			
300	6,9-7,1	0,9 - 1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1290	15,2-17,8	-	-	-	ca. 13	100	min. 8,5	325	1,5-1,7
ca. 65	11,0	1290-1300				355-470	300	6,9-7,1	850	4,9-5,1
	4,0	1375-1405							1150	7,1-7,3
									1400	9,9

Torque control travel a = 0,8 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1250	0,7 bar 88,5-89,5 (86,5-91,5)	1290-1300*	LDA 600	0,7 bar 82,5-84,5 (80,0-87,0)	100	110,-120,0 (107,0-123,0) = 17,1-17,5 mm RW	1250	12,0+0,1
LDA 800	0,7 bar 85,0-88,0 (83,0-90,0)		LDA 500	0 bar 59,0-61,0 (57,0-63,0)			500	12,8+0,1
							775	12,5+0,2
							1025	12,1+0,3

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.84

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K3

K3

# D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 k 3

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2592 + RQV..AB 1188 L	0,70	0	12,8 - 12,9
		0,26	10,9 - 11,1
		0,19	12,4 - 12,5
			11,9 - 12,1

## Notes

(1) when n = rev/min and gauge pressure = bar ( = maximum full load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 4,0 a

1. Edition

En

PES 4 A 90 D 410 RS 2666 RQV 300-1400 AB 1065-5 L

Komb.-Nr. 0 400 844 083

Specifications apply to test tubing 1 680 750 015

supersedes

company Daimler-Benz

engine OM 364

66 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,25-2,35 mm (from BDC)  
(2,20-2,40)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	10,9+0,1	6,4-6,5	0,3(0,45)			
300	8,7-8,9	0,8-1,2	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1500	15,2-17,8	-	-	-	ca.21	100	min.10,3	300	0,8-1,3
ca.65	9,9	1440-1450					300	8,7-8,9	500	2,3-2,8
	4,0	1545-1575					570-630 = 2,0		750	4,1-4,3
	1630	0-1,0							1500	8,5

Torque control travel a = 1,4 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	63,5-64,5 (61,5-66,5)	1440-1450*	500	50,0-53,0 (47,5-55,5)	100	78,0-88,0 (75,0-91,0)	1400	10,9+0,1
			900	52,5-55,5 (50,0-58,0)		= 16,3-16,7 mm RW	500	12,3+0,1
							850	11,9+0,2
							1200	11,2+0,8

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.84

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K5

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 12,7 t 1

2. Edition

En

PE 8 MW 100/720 LS 1117  
RQ 300/1000 MW 52  
0 403 548 005

supersedes 10.84  
company KHD  
engine F 8 L 413 F  
150 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,10-3,20$   
 $(3,05-3,25)$  mm (from BDC) RW = 9,0-12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm <sup>3</sup> /100 strokes	cm <sup>3</sup> /100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
1	2	3	4	2	3	6
600	10,7+0,1	9,2-9,4	0,35(0,6)			
300	7,1-7,2	1,1-1,5	0,35(0,55)			
1000	9,5-9,6		0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
520	19,2-20,8	520	20,0	8,5	1045-1060	300	7,1	100	min. 9,1	975	9,5-9,6
				4,0	1080-1110			300	7,1-7,2	650	10,7-10,8
1200	0 - 1,0										

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes/mm
1	2	3		4	5	6	7
600	92,0-94,0 (90,0-96,0)			1000	87,0-89,0 (84,5-91,5)	100	140,0-150,0 (137,0-153,0)
						300	11,0-15,0 (8,5-17,5)
						100-230	(80-250)

Checking values in brackets

01.85

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K6

46

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 12,7 t

2. Edition

En

PE 8 MW 100/720 LS 1117  
RQ 300/1000 MW 52-1  
0 403 548 009

supersedes 0,84  
company KHD  
engine F 8 L 413 FZ  
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,10-3,20}{(3,05-3,25)}$  mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
650	11,4+0,1	10,6-10,8	0,35 (0,6)			
300	7,5-7,6	1,1-1,5	0,35 (0,55)			
1150	10,0+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications rev/min 6		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 12	
550	19,2-20,8	550	20,0	9,0	1195-1210	300	7,5	100	min.9,0	1150	10,0-10,1
				4,0	1240-1270			300	7,5-7,6	650	11,4-11,5
1350	0 - 1,0							350-380	= 2,0	850	10,5-10,8

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm <sup>3</sup> /1000 strokes 2		Control rod travel mm 3a		cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes / mm 7	
650	106,0-108,0 (104,0-110,0)			1150	96,0-98,0 (93,5-100,5)	100	130,0-140,0 (127,0-143,0)
						300	11,0-15,0 (8,5-17,5)
						100-230	(80-250)

Checking values in brackets

01.85

②

# Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 12,7 t 2  
2. Edition

En

Test ISO 4113

PE 8 MW 100/720 LS 1117  
RQ 300/1150 MW 53  
0 403 548 006  
1- 8- 7- 2 - 6 - 5 - 4 - 3  
0-45-90-135-180-225-270-315

supersedes 10.84

company KHD

engine BF 8 L 413 FZT  
206 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (3,10-3,20) mm (from BDC) RW-9-12 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	13,3+0,1	12,3-12,5	0,35(0,6)			
300	7,5-7,6	1,1-1,5	0,35(0,55)			
1150	12,3+0,1		0,5 (0,7)			
400	12,4+0,1					

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
600	19,2-20,8	600	20,0	11,3 4,0	1195-1210 1230-1260	300	7,5	100 300	min.9,1 7,5-7,6	150 800 650	12,3-12,4 13,0-13,3 13,3-13,4
1350	0 - 1,0										

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm <sup>3</sup> /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm <sup>3</sup> /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm <sup>3</sup> /1000 strokes/mm 7	
LDA 800	0,8 bar 123,5-125,5 (121,5-127,5)			LDA 1150 LDA 400	0,8 bar 118,0-120,0 (115,5-122,5) 0 bar 96,0-98,0 (93,5-100,5)	100 300 100-230	140,0-150,0 (137,0-153,0) 11,0-15,0 (8,5-17,5) (80-250)

Checking values in brackets

01.85

K8

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
LS 1117 mit MW 53	0,8	0,19 0,13 0	13,3-13,4 13,0-13,1 12,6-12,7 12,4-12,5

Notes

(1) when n = rev/min and gauge pressure = bar ( = maximum full-load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 17,4 a 5

En

1. Edition

PE 10 P 110 A 520/5 LS 846 RQV 250-1150 PA 673-1

Komb.-Nr. 0 401 849 183

1- 8- 7- 6- 3- 5- 2- 10- 9- 4

0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

supersedes-

company MAN

D 2540 MTF

engine 310 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

3,0-3,1  
Port closing at prestroke (2,95-3,15) mm (from BDC) 7yl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,5+0,1	13,2-13,5	0,4(0,75)			
250	6,9-7,1	1,1-1,6	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1170	15,2-17,8	-	-	-	ca. 12	100	min.8,5	350	2,0-2,5
ca. 65	10,5 4,0 1450	1190-1200 1310-1340 0-1,0					250 400-460=2,0	6,9-7,1	850 1150	6,5-6,7 8,4

Torque control travel: a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,9 bar 132,0-135,0 (129,5-137,5)	1190-1200*	LDA 750	0,9 bar 122,0-126,0 (119,0-129,0)	100	150,0-170,0 (146,0-174,0)	-	-
			LDA 500	0 bar 115,0-118,0 (112,5-120,5)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.84

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K10

kno



# D. Adjustment Test for Manifold Pressure Compensator

MAN 17,4 a 5

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PE 10 P.. LS 846 +RQV.. PA 673-1	0,90	0 0,32	11,5-11,6 11,1-11,2 11,3-11,4

Notes

(1) when n =

rev/min and  
gauge pressure =

bar ( = maximum full load control rod travel)

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 17,4 b 9

1. Edition

En

PE 10 P 120 A 520/5 LS 850-1 RQ 750 PA 663-3

supersedes

company MAN

engine D 2540 MLE

283 kW

Komb.-Nr. 0 401 849 174

1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4

0-27-72-99-144-171-216-243-288-315° ± 0,5 ° (± 0,75 °)

Values only apply to test nozzle-and-holder  
assembly 1 688 901 019 and fuel-injection test  
tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,9+0,1	19,5-19,7	0,5(0,9)			
250	4,4-4,6	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 10		Torque control rev/min 11		Control rod travel mm 12	
-	-	-	-	-	-	-	-	10,9 4,0 950	750-755 776-789 0 - 1,0	-	-	-	-	-	-	-	-	-	-

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

750-755 min

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7	
700	195,0-197,0 (192,0-200,0)	-	-	-	-	-	-	-	-

Checking values in brackets

11.84

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K12

K12

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 14,5 a

1. Edition

En

PE 8 P 110 A 320 LS 851 RQ 250/1150 PA 688  
Komb.-Nr. 0 401 848 082  
1-8-7-2-6-3-5-4 je  $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes-  
company MAN  
D 2848 T  
engine 245 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,0-3,1$   
(2,95-3,15) mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,8+0,1	14,3-14,5	0,4(0,75)			
250	4,9-5,1	1,8-2,4	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10 rev/min 9		Torque control rev/min 11	
600	19,2-20,8	600	20,0	9,8	1195-1210	250	5,0	100	min.6,5	1150	10,8-10,9
VH	max. 40°			4,0	1280-1310			250	4,9-5,1	700	10,8-11,0
				1450	0-1,0			310-350	= 2,0		

Torque-control travel  
on flyweight assembly dimension a = 0 mm

Speed regulation: At 1195-1210 min<sup>-1</sup>

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		Control rod travel mm 7
LDA 1150	1,0 bar 143,0-145,0 (140,5-147,5)	-		LDA 700	1,0 bar 140,0-144,0 (137,0-147,0)	100	185,0-205,0 (181,0-209,0)
				LDA 500	0 bar 108,0-110,0 (105,5-112,5)	250	18,0-24,0 (15,5-26,5)

Checking values in brackets

# D. Adjustment Test for Manifold Pressure Compensator

MAN 14,5 a

- 2 -

Test at n : 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure : bar	Gauge pressure : bar	diminution difference mm (1)
PE8P..LS851 + RQ..PA688	1,0	0 0,29 0,23	10,8-10,9 9,7-9,8 10,5-10,6 9,9-10,1

## Notes

(1) when n

rev/min and  
gauge pressure :

bar ( maximum full load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 CAT 7,0 b

1. Edition

En

PES 4 P 80 A 720 LS 852  
Komb.-Nr. 9 400 087 301

RQV 350-1000 PA 609-1

supersedes -

company Caterpillar  
engine 3304 T  
107 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 1,65-1,75  
(1,60-1,80) mm (from BDC): RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,2+0,1	10,7-10,8	0,25 (0,35)			
350	6,7-6,9	1,0-1,7	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1010	15,2-17,8	-	-	-	ca. 17	100	min. 11,5		
ca. 68	10,2 4,0 1200	1030-1040 1110-1140 0-1,0					350	6,3-6,6		
							530-590	= 2,0		
						3a				

Torque control travel a = 1,0 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1000	106,5-107,5 (105,0-109,0)	1030-1040*	700	113,0-115,0 (111,0-117,0)	100	17,6-18,6 mm RW	1000	12,2+0,1
			500	109,0-112,0 (107,0-113,0)			850	12,7+0,2
							700	13,1+0,6
							500	13,2+0,1

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.84

K15

KAS

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①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 m 1

4. Edition

En

**Testoil-ISO 4113**

PE 6 P 110 A 720 RS3006 RQV 200-1100 PA283KR

Please note instructions on sheet 2.

 superseded by 84  
 company Scania  
 engine DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $3,30-3,40$   
 $(3,25-3,45)$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	14,0+0,1	17,7 - 17,9	0,6(0,8)			2,5 ± 0,1 (max. 2,2-2,9)
225	5,7-5,9	0,9 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca. 11	100	min. 7,4	300	2,0-2,8
							225	5,7-5,9	800	5,2-5,6
							335-395	= 2,0	1150	8,3
							650	0 - 1		
ca. 63	12,9 4,0 1400	1140-1150 1270-1300 0 - 1,0				3a				

Torque control travel a = mm Sp. 10-11 -

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
LDA 1100	0,7 bar 177,0-179,0 (174,0-182,0)	1140-1150*	LDA 850	0,7 bar 154,0-160,0 (151,0-163,0)	100	190 - 240	1100	13,9	
					225	9 - 13 **	850	13,0	
			LDA 500	0 bar 133,0-137,0 (130,0-140,0)	RW 6: 26,5-36,5 Streug. max. 4 (6)	***	600	13,2	
									./.

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.84

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K16

YAG

## D. Adjustment Test for Manifold Pressure Compensator

Test at n 850 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure - bar	Gauge pressure - bar	mm (1)
3006 mit 283KR	0,40		12,8 - 12,9
		0,25	11,9 - 12,0
		1,0	14,0 - 14,1
		0	11,8 - 11,9

Notes: XXXXXXXX

XX  
 XX  
 gauge pressure

### Notes:

1. Start-of-delivery test without, fuel delivery test with Robo diaphragm.
2. After full-load setting, set stop screw in manifold-pressure compensator housing to 0.5 mm control-rod travel more than full-load control-rod travel.
3. Additional start test: At  $n = 0 \text{ min}^{-1}$  and with control lever vertical, operate start knob = 20 - 21 mm control-rod travel must be reached.
4. \*\* In case of large scatter, correspondingly change preload of valve spring.
5. High idle \*\*\*: Raise engine speed until control-rod travel of 6 mm is reached and measure scatter.

TEX/Pu

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,0 c 1

6. Edition

En

PE 8 P 110 A 920/4 LS 3020 RQV 250-1000 PA 306-2 R

supersedes 6.83

company Saab-Scania

engine US 14 01

Komb.-Nr. 0 401 848 717

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je  $45^0 \pm 0,5^0$  ( $\pm 0,75^0$ )

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,3 - 3,4$   
( $3,25 - 3,45$ ) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	13,5 $\pm$ 0,1	16,3 - 16,5	0,6(0,8)			3,3 $\pm$ 0,1
225	4,4-4,6	1,5 - 1,9	0,2(0,4)			(3,0 - 3,5)

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1000	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	200	1,0-1,2
ca. 61	12,5 4,0 1300	1040-1050 1150-1180 0 - 1,0					250	4,4-4,6	470	3,4-3,8
							350-410=2,0		730	5,1-5,3
									1000	7,7

Torque control travel a ~ - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F) rev/min 1		Rotational speed limitation intermediate speed rev/min 3		Fuel delivery characteristics high idle speed rev/min 4		Starting fuel delivery idle switching point rev/min 6		Torque-control travel rev/min 8	
cm <sup>3</sup> /1000 strokes 2	cm <sup>3</sup> /1000 strokes 5	cm <sup>3</sup> /1000 strokes 3	cm <sup>3</sup> /1000 strokes 5	cm <sup>3</sup> /1000 strokes 7	cm <sup>3</sup> /1000 strokes 9	cm <sup>3</sup> /1000 strokes 7	cm <sup>3</sup> /1000 strokes 9	mm 8	mm 9
LDA 1000	0,7 bar 163,0-165,0 (161,0-167,0)	1040-1050*	LDA 600 0,7 bar 165,5-170,5 (163,0-173,0) LDA 500 0 bar 127,0-131,0 (125,0-133,0)		100	240,0-290,0 = 20,0-21,0 mm RW		-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.84

Test oil ISO 4113

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## D. Adjustment Test for Manifold Pressure Compensator

SCA 14,0 c 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure bar	Gauge pressure bar	mm (1)	
PE 8 P..LS 3020 + RQV..PA 306-2 R	0,70		13,5 - 13,6	
		0	12,0 - 12,1	
		0,45	13,1 - 13,2	
		0,32	12,2 - 12,4	
SCA 11,0 v 1				

### Notes

(1) when n = rev/min and gauge pressure = bar ( maximum full load control rod travel)

## S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 16.4.1984
- Start of fuel delivery-engine: 20° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 Vol.12,0c

7. Edition

En

**Testoil-ISO 4113**

PE 6 P 120 A 320 RS 3032 RQV 250-1100PA355/2R

supersede 7.83

company Volvo

engine TD 120 C

Komb.-Nr. 0 401 846 707

Values only apply to test nozzle-and-holder  
assembly 1 688 901 019 and fuel-injection test  
tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,60-2,70 \\ (2,55-2,75) \end{matrix}$  mm (from BDC) Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery 3032 cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery 3032Y cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0-12,1	20,9 - 21,1	0,4(0,8)			2,5 <sub>+</sub> 0,1**
250	5,3-5,5	0,9 - 1,3	0,3(0,6)			(max.2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in 

\*\* In case valve-spring spread is higher, change the initial tension accordingly.

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca.10	100	mind.6,8	350	1,4-2,0
ca. 45	11,0 4,0 1320	1140-1150 1225-1255 0 - 1,0					250 300-360=2,0	5,3-5,5	650 1170	3,7-4,0 8,3

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed (2b) limitation intermediate speed (4a)	Fuel delivery characteristics (5a) high idle speed (5b)	Starting fuel delivery Idle switching point (6)	Torque-control travel (5)			
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 209,0-211,0 (206,0-214,0)	1140-1150*	LDA 700	0 bar 137,0-141,0 (135,0-145,0)	100 250 Streuung max.3(6)	410,0-460,0 9 - 13 **	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

12.84

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**D. Adjustment Test for Manifold Pressure Compensator**

Test at n **500** rev/min decreasing pressure - in bar gauge pressure  
 increasing  
 XXXXXXXX

Pump/governor	Setting Gauge pressure - bar	Measurement Gauge pressure - bar	Control rod travel - diminution difference	
			mm	(1)
3032 + 355/2R	0,90		12,0	12,1
		0,55	11,4	11,5
		0,14	9,2	9,4
		0	9,1	9,2

**Notes**

(1) when n =

rev/min and  
gauge pressure :

bar ( - maximum full-load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 h  
6. Edition

En

PE 6 P 110 A 720 RS 3034 RQV 200-1200 PA 529

Komb.-Nr. 0 401 846 73z

superseded by 84  
company Scania  
engine DS1 801

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 3,3 - 3,4  
(3,25-3,45) mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2±0,1	12,9 - 13,1	0,5(0,7)			2,5 ± 0,1
225	5,5-5,7	1,2 - 1,6	0,2(0,4)			(2,2 - 2,9) **

Adjust the fuel delivery from each outlet according to the values in

\*\*

In case valve-spring spread is higher, change the initial tension accordingly.

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 14	100	min. 7,0	150	0,5-0,8
ca. 64	12,2	1240-1250					225	5,5-5,7	500	3,7-4,3
	4,0	1395-1425							850	6,2-6,4
	1550	0 - 1,0					390-450 = 2,0		1200	8,6

Torque control travel s = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational speed limitation intermediate speed 2b	Fuel delivery characteristics high idle speed 5b		Starting fuel delivery Idle switching point 6	Torque-control travel 5	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 129,0-131,0 (127,0-133,0)	1240 - 1250	LDA 1200	0,9 bar 133,5-138,5 (131,0-141,0)	100	-	-
			LDA 500	0 bar 79,0-83,0 (77,0-85,0)			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

## D. Adjustment Test for Manifold Pressure Compensator

SCA 8,0 h

- 2 -

Test at n 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure                      bar	Gauge pressure                      bar	mm                      (1)	
PE 6 P..RS 3034 + RQV..PA 529	0,90	0	13,2 - 13,3	
		0,44	11,3 - 11,4	
		0,29	12,7 - 12,8	
			11,7 - 11,9	
		SCA 11,0 y 1		

Notes

(1) when n

rev/min and  
gauge pressure -

bar ( - maximum full load control rod travel)

### S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 22.8.1983
- Start of fuel delivery-engine: 17° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 SCA 11,0 r 1

6. Edition

En

PE 6 P 110 A 720 RS 3040  
Komb.-Nr. 0 401 846 717

RQ 250/1100 PA 411 R

supersedes 3.84

company Scania

engine DS 11 01

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $3,3 - 3,4$   
 $(3,25 - 3,45)$  mm (from BDC) RW =  $9,0 - 12,0$  mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	13,0±0,1	16,1-16,3	0,6(0,8)			3,3± 0,1
225	4,4-4,6	1,7- 2,1	0,2(0,4)			(3,0- 3,5)

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10 rev/min 9		Torque control rev/min 11 Control rod travel mm 12	
700	15,6-16,4	700	16,0	12,0 4,0 1350	1145-1160 1230-1260 0-1,0	225	4,5	100 225 300-340	min. 5,9 4,4-4,6 =2,0	-	-

Torque-control travel  
on flyweight assembly dimension =

mm

Speed regulation: At  $1145-1160 \text{ min}^{-1}$ 1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm <sup>3</sup> /1000 strokes 2	cm <sup>3</sup> /1000 strokes 5	cm <sup>3</sup> /1000 strokes 7	Control rod travel mm Control rod travel mm	cm <sup>3</sup> /1000 strokes 5	cm <sup>3</sup> /1000 strokes 7	Control rod travel mm	Control rod travel mm
LDA 600	0,9 bar 161,0-163,0 (159,0-165,0)	-		LDA 1100 0 bar 128,0-132,0 (126,0-134,0)	0,9 bar 153,5-158,5 (151,0-161,0)	100	240,0-290,0 =20,0- 21,0 mm RW

Checking values in brackets

1.85

## D. Adjustment Test for Manifold Pressure Compensator

Test at n 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

SCA 11,0 r 1 -2-

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure : bar	Gauge pressure : bar	mm (1)	
PE 6 P .. RS 3040 +RQ.. PA 411 R	0,90			
		0		13,0-13,1
		0,37		11,7-11,8
		0,25		12,7-12,8 11,8-12,0

Notes

(1) when n =

rev/min and  
gauge pressure =

bar ( : maximum full-load control rod travel)

SCA 11,0 y 1

### S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 29.8.1984
- Start of fuel delivery-engine: 20° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 SCA 11,0 r 4  
6. Edition

40

En

PE 6 P 110 A 720 RS 3040 RSV 350-1100 P1/481  
Komb.-Nr. 0 401 876 720  
Please note instructions on sheet 2.

superseded 3.84  
company Scania  
engine DS 11 05  
Case

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\overset{3,3-3,4}{(3,25-3,45)}$  mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	13,1+0,1	15,6-15,8	0,6(0,8)			3,3 ± 0,1 (3,0 - 3,5)
350	4,4-4,6	1,8-2,2	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	800	0,3-1,0	-	-	-	ca.30	350	4,0	-	-
	x =	2,75								
ca. 66	12,1	1140-1150					350	4,4-4,6		
②a	4,0	1210-1240					440-500	= 2,0		
	1350	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min				Idle			
rev/min	cm <sup>3</sup> /1000 strokes	3		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
1100	156,0-158,0 (154,0-160,0)	1140-1150*	700	156,5-161,5 (154,0-164,0)		100	240,0-290,0 = RW 20,0-21,0 mm	-	-
						350	18,0-22,0		

Checking values in brackets

\* 1 mm less control rod travel than col 2

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1.85

Testoil-ISO 4113

L3

L3



S U P P L E M E N T A R Y   I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 29.8.1984
- Start of fuel delivery-engine:      20° before TDC
- Firing sequence, engine            :      1-5-3-6-2-4

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPD 001/4 SCA 11,0 r6  
3. Edition

En

PE 6 P 110 A 720 RS 3040 RNV 200-1000 PA 555-1  
Komb.-Nr. 0 401 846 763

supersedes 83  
company Scania  
engine DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (3,25-3,45) mm (from BDC)= RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,6+0,	16,8-17,0	0,6 (0,8)			3,3 <sup>+0,1</sup> (3,0-3,5)
225	4,4-4,6	1,7-2,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1050	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	150	0,5-0,8
ca. 60	12,6 4,0 1300	1040-1050 1155-1185 0 -1,0					225	4,4-4,6	430	3,1-3,6
							310-370=2,0		720	5,1-5,4
									1000	7,9

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 168,0-170,0 (166,0-172,0)	1040-1050*	LDA 1000	0,9 bar 171,5-176,5 (169,0-179,0)	100	240,0-290,0 =RW 20,0- 21,0 mm	-	-
			LDA 500	0 bar 133,0-137,0 (131,0-139,0)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

1.85

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Tested: 00 4113

L5

## D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

SCA 11,0 r 6

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P.. RS 3040 + RIV.. PA 555-1	0,42	0,90 0 0,29	13,2-13,3 13,6-13,7 12,0-12,1 12,3-12,5

SCA 11,0 y 1

Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

### S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 29.8.1983
- Start of fuel delivery-engine: 19° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 14,6 g 1

5. Edition

En

PE 8 P 120 A 320 LS 3807  
Komb.-Nr. 0 401 848 747

RQ 300/1150 PA 511-2

supersedes 1.83  
company: Daimler-Benz  
OM 422 LA  
engine 276 kW (375 PS)

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je  $45^\circ \pm 0,5^\circ$  ( $\pm 0,75^\circ$ )  
Values only apply to test nozzle-and-holder  
assembly 1 688 901 019 and fuel-injection test  
tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,6+0,1	18,9 - 19,1	0,5(0,9)			
300	4,8-5,0	1,2 - 2,0	0,8(1,2)			
1150	-	C, Sp.1u. 2	0,75			
600	-	C, Sp.4u. 5	0,75			
500	-					

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,1 - 20,8	600	19,9	10,6 4,0	1195-1210 1250-1280	300	4,3	100 300 335-375	min.6,0 4,2-4,4 =2,0	-	-

Torque-control travel on flyweight assembly dimension a =  mm Speed regulation: At 1195 - 1210 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	Control rod travel cm <sup>3</sup> /1000 strokes/mm 7
LDA 900	0,7 bar 189,0 - 191,0 (186,0 - 194,0)	-	LDA 600	0,7 bar 182,0 - 186,0 (179,0 - 189,0)	100	140,0 - 160,0 (136,0-164,0)
LDA 1150	0,7 bar 185,0-189,0 (182,0-192,0)		LDA 500	0 bar 139,0-141,0 (136,0-144,0)		

Checking values in brackets

9.83

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# D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 g1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P..LS 3807 + RQ..PA 511-2	0,44		11,1 - 11,3
		0,70	11,6 - 11,7
		0	10,1 - 10,2
		0,34	10,3 - 10,4

## Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MB 21,9 b 1

3. Edition

En

PE 12 P 120 A 320 LS 3819-2 RQV 350-1050 PA 493

1 - 5 - 9 - 8 - 3 - 4 - 11-10 - 2 - 6 - 7 - 12

0 -15 -60 -75-120-135-180-195-240-255-300-315° ±0,5(±0,75)

Values only apply to test nozzle-and-holder assembly

1 688 901 019 and fuel-injection test tubing 1 680 750 067.

supersedes

10.83

company:

Daimler-Benz

engine:

OM 424 A

357 kW (485PS)

Komb.-Nr.

0 401 840 711

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $\frac{4,00-4,10}{(3,95-4,15)}$  mm (from BDC) cyl. 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,2+0,1	15,1-15,3	0,5(0,8)			
350	4,6-4,8	1,2- 1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1180	15,2-17,8	-	-	-	ca. 10	100	min. 6,2	300	0,9-1,1
ca. 56	9,2 4,0 1350	1085-1095 1165-1195 0 - 1,0				360-500 (3a)	350	4,6-4,8	550 800 1050	3,4-3,6 4,7-4,9 6,8

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1050	0,6 bar 151,0-153,0 (148,0-156,0)	1080-1090*	LDA 1050 ** LDA 500	0,6 bar 120,0-123,0 (117,0-126,0) 0 bar 128,0-130,0 (125,0-133,0)	100	140,0-160,0 (136,0-164,0)	-	-

\*\* Set at the reduced-delivery stop.

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.84

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L9

# D. Adjustment Test for Manifold Pressure Compensator

MB 21,9 b 1 - 2 -

Test at n 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement		Control rod travel diminution difference mm (1)
	Gauge pressure = bar	Gauge pressure = bar		
PE 12 P..LS3819-2 +ROV..PA 493	0,28			9,9-10,0
		0,60		10,2-10,3
		0		9,5-9,6
		0,24		9,6-9,8

## Notes

(1) when n = rev/min and gauge pressure = bar ( = maximum full-load control rod travel)

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 21,9 a 5

1. Edition

En

PE 12 P 120 A 320 LS 3819-10 RQ 750 PA 635-2  
 1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12  
 0-15-60-75-120-135-180-195-240-255-300-315°  $\pm 0,5^\circ$  ( $\pm 0,75^\circ$ )  
 Values only apply to test nozzle-and-holder  
 assembly 1 688 901 019 and fuel-injection test  
 tubing 1 680 750 067

supersedes-

company Daimler-Benz

engine OM 424 LA

Komb.-Nr. 0 401 840 722

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings -

Port closing at prestroke (3,95-4,15) mm (from BDC) Zyl. 12; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,4+0,1	20,2-20,4	0,5(0,8)			
300	4,9-5,1	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min 1	mm 2	rev/min 3	mm 4	mm 5	rev/min 6	rev/min 7	mm 8	rev/min 9	mm 10	rev/min 11	mm 12
-	-	-	-	11,4 4,0 840	750-755 778-791 0-1,5	-	-	-	-	-	-

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At 750-755 min<sup>-1</sup>1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	mm 3a	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
700	202,0-204,0 (199,0-207,0)	-	-	-	-	100	160,0-180,0 (156,0-184,0)

Checking values in brackets

12.84

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L11

L11



①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 21,9 e 2

1. Edition

En

PE 12 P 110 A 320 LS 3820-1 RQV 350-1150 PA 378-1  
Komb.-Nr. 0 401 840 709  
1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12  
0-15-60-75-120-135-180-195-240-255-300-315°  $\pm 0,5^\circ$  ( $\pm 0,75^\circ$ )

supersedes \_  
company Daimler-Benz  
engine OM 424  
309 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,0-4,1 \\ (3,95-4,15) \end{matrix}$ mm (from BDC) $\begin{matrix} 7,1-12 \end{matrix}$						
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,4 $\pm$ 0,1	12,2-12,4	0,4(0,8)			
350	7,7-7,9	1,4-2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 19	100	min. 9,0	300	0,6-0,9
ca. 64	10,4	1170-1180					300	7,4-7,6	580	3,6-3,8
	4,0	1235-1265							870	5,2-5,3
	1300	0-1,0				375-485			1150	7,1
						③a				

Torque control travel a =   mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	122,0-124,0 (119,0-127,0)	1170-1180*	600	96,0-100,0 (93,0-103,0) 90,0-94,0 (87,0-97,0) **	100	130,0-140,0 (126,0-144,0)	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

\*\* Set at the reduced-delivery stop.

12.84

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L12

L12

②

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 18,3 e 2

1. Edition

40

En

PE 10 P 120 A 320 LS 3824-10 RQ 300/1050 PA 511-3

1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4

0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75 °)

Values only apply to test nozzle-and-holder  
assembly 1 688 901 019 and fuel-injection test  
tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes

company Daimler-Benz

engine OM 423 LA

368 kW

Komb.-Nr. 0 401 849 711

Test ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke

 4,0-4,1  
(3,95-4,15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,7+0,1	18,3-18,5	0,5 (0,8)			
300	5,0-5,2	1,6-2,2	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 4 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 8 rev/min 10		Torque control rev/min 11 Control rod travel mm 12	
600	19,2-20,8	600	20,0	10,7	1195-1210	300	5,1	100	min. 6,5	-	-
VH = max. 46°				4,0	1245-1275			300	5,0-5,2		
				1350	0 - 1,0			360	400 = 2,0		

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation 1195-1210 min<sup>-1</sup>

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes/mm 7	Control rod travel mm 8
LDA 1150	0,7 bar 183,0-185,0 (180,0-188,0)	-		LDA 750	0,7 bar 186,0-192,0 (183,0-195,0)	100	150,0-170,0 (146,0-174,0)
				LDA 500	0 bar 138,0-141,0 (135,0-144,0)		

Checking values in brackets

11.84

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L13

L13

# D. Adjustment Test for Manifold Pressure Compensator

MB 18,3 e 2 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement		diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm	(1)
PE10P..LS3824-10 + RQ.. PA 511-3	0,70			11,7-11,8
		0		10,0-10,2
		0,39		10,4-10,6
		0,52		11,4-11,5

## Notes

(1) when n rev/min and gauge pressure - bar (= maximum full-load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 18,3 e 1

1. Edition

En

PE 10 P 120 A 320 LS 3824-10 RQV 300-1150 PA 724  
 1- 8- 7- 6- 3- 5- 2- 10- 9- 4  
 0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)  
 Values only apply to test nozzle-and-holder  
 assembly 1 688 901 019 and fuel-injection test  
 tubing 1 680 750 067

supersedes  
 company Daimler-Benz  
 engine OM 423 LA  
 368 kW  
 Komb.-Nr. 0401849710

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $4,0-4,1$  mm (from BDC) Zyl. 10  
 $(3,95-4,15)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (for the control valve) mm 6
1150	11,7+0,1	18,3-18,5	0,5 (0,8)			
300	5,0-5,2	1,6-2,2	0,8 (1,2)			
750	-	C, Sp. 4 u. 5	0,8 (1,2)			
500	-					

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 20	100	min. 6,3	300	1,0-1,2
ca. 54	10,7 4,0 1300	1190-1200 1245-1275 0 - 1,5				300-400	300	4,8-5,0	500 700 1100	4,0-4,5 5,3-5,8 7,6

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 183,0-185,0 (180,0-188,0)	1190-1200*	LDA 750	0,7 bar 186,0-192,0 (183,0-195,0)	100	150,0-170,0 (146,0-174,0)	-	-
			LDA 500	0 bar 138,0-140,0 (135,0-143,0)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.84

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L15

L45

# D. Adjustment Test for Manifold Pressure Compensator

MB 18,3 e 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm (1)
PE 10P..LS3824-10 + RQV.. PA 724	0,70	0	11,7-11,8
		0,39	10,0-10,2
		0,52	10,4-10,6
			11,2-11,3

Notes

(1) when n =

rev/min and  
gauge pressure =

bar ( = maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 SCA 11,0 u 4

5. Edition

En

PE 6 P 120 A 720 RS 7001 RSV 350-1100 P 1/481

Values only apply to test nozzle-and-holder  
assembly 1 688 901 019 and fuel-injection test  
tubing 1 680 750 015

supersedes 5.83

company Saab-Scania

engine DS 1140, 41, 42

DSI 1140, 44

Komb.-Nr. 0 402 676 800

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

ab FD 141: 5,0-5,1 bis FD 052: 4,4-4,5 mm  
Port closing at prestroke (4,95-5,15) mm (from BDC) (4,35-4,55)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> / 100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,2+0,1	19,9 - 20,1	0,6(0,9)			3,3 ± 0,1
350	4,4-4,6	1,3 - 1,7	0,3(0,6)			(3,0 - 3,5)**

Adjust the fuel delivery from each outlet according to the values in

Due to smoothing of the sealing edge, the initial spring tension  
with a new delivery-valve holder must be adjusted to 2,9-3,1 mm

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	800	0,3 - 1,0	-	-	-	ca. 28	350	4,0	-	-
	x = 5,5						350	4,4-4,6		
ca. 64	12,2	1090-1100					430-490	2,0		
⑤	4,0	1170-1200								
	1300	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	3		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
700	199,0-201,0 (196,0-204,0)	1090-1100*	1000	193,0-201,0 (190,0-204,0)	100	240,0-290,0 = 20,0 - 21,0 mm RW		-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

S U P P L E M E N T A R Y   I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on Aug. 18. 1983
- Start of fuel delivery-engine:    DS 11-17° before TDC; DSI 11-16° before TDC
- Firing sequence, engine            :    1-5-3-6-2-4

\*\* Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 - 3,1 mm.

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 11,0 u 7

3. Edition

En

**Testoil-ISO 4113**

PE 6 P 120 A 720 RS 7001 RQ 200/1000 PA 615

Values only apply to test nozzle-and-holder  
assembly 1 688 901 019 and fuel-injection test  
tubing 1 680 750 015

supersedes 5.83

company Scania

engine DN 1106, 07

Komb.-Nr. 0 402 646 80

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

ab FD 141: 5,0 - 5,1  
Port closing at prestroke (4,95 - 5,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,3+0,1	15,7 - 15,9	0,6(0,9)			3,3 ± 0,1
225	4,4-4,6	1,1 - 1,5	0,3(0,6)			(3,0 - 3,5) ..

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10 rev/min 9		Torque control rev/min 11 Control rod travel mm 12	
600	15,6-16,4	600	16,0	10,3 4,0 1200	1045-1060 1090-1120 0 - 1,0	225	4,5	100 225 300-340	min. 5,9 4,4-4,6 = 2,0	-	-

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At 1045-1060 min<sup>-1</sup>

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
600	157,0-159,0 (154,0-162,0)	-	-	1000	154,0-162,0 (152,0-164,0)	100	240,0-290,0 = 20,0-21,0 mm RW

Checking values in brackets

11.84

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S U P P L E M E N T A R Y   I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 18.8. 1983
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

\*\* Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 3,0 - 3,1 mm.

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 11,0 u 11

1. Edition

En

PE 6 P 120 A 720 RS 7001 RQ 200/1100 PA 713

Komb.-Nr. 0 402 646 819

Values only apply to test nozzle-and-holder  
assembly 1 688 901 019 and fuel-injection test  
tubing 1 680 750 015

supersedes

company

engine

Scania

DS 11 25,26

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

(4,95-5,15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,7+0,1	16,1-16,3	0,6(0,9)			3,3 <sup>±</sup> 0,1
225	4,4-4,6	1,1-1,5	0,3(0,6)			(3,0-3,5) ★★

Adjust the fuel delivery from each outlet according to the values in



## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm		Setting point		Test specifications		Setting point		Test specifications		Control rod travel mm	
rev/min 1	2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1300	15,2-17,8	1300	16,5	10,7 4,0 1400	1145-1160 1250-1280 0 - 1,0	225	4,5	100 225 300	min.5,9 4,4-4,6 340=2,0	-	-

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1145-1160 min<sup>-1</sup>1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
LDA 700	0,5 bar 161,0-163,0 (158,0-166,0)	-		LDA 1100	0,5 bar 163,0-171,0 (161,0-173,0)	100	240,0-290,0 =20,0-21,0 mm RW
				LDA 500	0 bar 120,0-124,0 (118,0-126,0)		

Checking values in brackets

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11.84

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## D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 u 11

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
PE 6 P.. RS 7001 +RQ.. PA 713	0,50	0	11,7-11,8	
		0,28	10,5-10,6	
		0,20	11,4-11,5	
			10,6-10,8	

Notes:

(1) when n =

rev/min and  
gauge pressure =

bar ( = maximum full load control rod travel)

### S U P P L E M E N T A R Y I N F O R M A T I O N

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 17.5.1984
- Start of fuel delivery-engine : DS 11 25 - 15° before TDC  
DS 11 26 - 11° before TDC
- Firing sequence, engine : 1 - 5 - 3 - 6 - 2 - 4

\*\* Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9 - 3,1 mm.

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCA 14,2 c 1

1. Edition

En

PE 8 P 120 A 920/4 LS 7002 RSV 350-1100 P 1/481

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je  $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

Values only apply to test nozzle-and-holder  
assembly 1 688 901 019 and fuel-injection test  
tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes -  
company Saab-Scania-Brasilien  
DS 14  
engine Komb.-Nr. 9 400 087 287

## A. Fuel Injection Pump Settings

Port closing at prestroke (4,95-5,15) mm (from BDG) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
700	13,2±0,1	18,7-18,9	0,6(0,9)			3,3±0,1
350	4,4-4,6	1,4-1,8	0,3(0,6)			(3,0-3,5) **
Due to smoothing of the sealing edge, the initial spring tension with a new delivery-valve holder must be adjusted to 2,9-3-1 mm						

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0	-	-	-	ca. 30	350	4,0	-	-
	x = 6,0						350	4,4-4,6		
Ca. 66	12,2	1140-1150					440-500	= 2,0		
2a	4,0	1210-1240								
	1370	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to )	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm <sup>3</sup> /100 strokes 2	3	4	5	6	7	8	9	
700	187,0-189,0 (184,0-192,0)	1140-1150*	1000	183,0-191,0 (182,0-193,0)	100	240,0-290,0 =20,0- 21,0 mm RW	0 -	-	-
					350	14,0-18,0			

Checking values in brackets

\* 1 mm less control rod travel than col 2

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